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THE RELATIONSHIP BETWEEN THE CONGRUENCY IN PERCEPTIONS OF
COACH LEADERSHIP BEHAVIOURS AND PERCEPTIONS OF COHESION AND
PERFORMANCE

by
Anthony G. Vander Laan

A Thesis
Submitted to the Faculty of Graduate Studies
through the Faculty of Human Kinetics
in Partial Fulfillment of the Requirements for
the Degree of Master of Human Kinetics at the
University of Windsor

Windsor, Ontario, Canada
2012
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The Relationship Between The Congruency in Perceptions of Coach Leadership
Behaviours and Perceptions of Cohesion and Performance

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AUTHOR'S DECLARATION OF ORIGINALITY

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ABSTRACT

The purpose of the present study was to examine the relationship between perceptual congruency of coaching leadership and perceptions of cohesion and performance. Sixty coaches and 199 athletes responded to two leadership inventories: the Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009) measuring transformational leadership and the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980) measuring transactional leadership. Additionally, athletes indicated perceptions of cohesion by completing the Group Environment Questionnaire (GEQ; Carron et al., 1985) and perceptions of personal performance through a self-report performance measure (Spalding, 2010). Results indicated that over-evaluative athletes (i.e., those who rated the coach favourably) held greater perceptions of all four dimensions of cohesion (all p 's $\leq .05$) and the dimension of Performance Achievement ($p < .001$) than did under-evaluative athletes (i.e., those who rated the coach less favourably). The findings provide evidence of the role congruency has upon perceptions of the group environment.

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RESEARCH ARTICLE

Introduction

Cohesion is defined as “a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213). In sport, cohesion has been found to be positively related to a wide variety of outcomes including but not limited to performance (Carron, Colman, Wheeler, & Stevens, 2002), return to the team (Spink, Wilson, & Odnokon, 2010), athlete satisfaction (Paradis & Loughhead, 2012), and collective efficacy (Kozub & McDonnell, 2000). Not surprising, several authors have suggested that cohesion is the *most* important small group variable (Golembiewski, 1962; Lott & Lott, 1965).

In order to guide cohesion research, Carron (1982) forwarded a linear conceptual framework consisting of antecedents, throughputs, and outcomes (see Figure 1). The central component of this model is the throughput of cohesion. According to Carron, Widmeyer, and Brawley (1985) cohesion is conceptualized into four distinct dimensions. The first dimension is Individual Attractions to the Group – Task (ATG-T), which refers to an individual’s feelings about his/her contribution surrounding the group’s task, goals, and productivity. The second dimension is Individual Attractions to the Group – social (ATG-S), which is defined as an individual’s feelings about his/her own personal acceptance within the group. The third dimension is Group Integration – Task (GI-T) and is viewed as the individual’s perceptions of the group as a whole around the group’s task, performance, and goals. The last dimension is Group Integration – Social (GI-S) and

refers to the individual's feelings concerning the similarity, closeness, and bonding around the group as a social unit.

As previously noted, Carron's (1982) conceptual framework suggests that cohesion is related to a variety of outcomes. Of particular relevance to the present study is the outcome of performance. In a meta-analysis of 46 studies examining the cohesion-performance relationship within sport, Carron et al. (2002) found an overall moderate to large positive relationship ($ES = .66$). Further, the results also showed that all four dimensions of cohesion, ATG-T ($ES = .47$), ATG-S ($ES = .35$), GI-T ($ES = .68$), and GI-S ($ES = .46$), were positively associated with performance.

Carron's (1982) conceptual framework of cohesion proposes that four types of antecedents will be related to perceptions of cohesion: environmental, personal, team and leadership. Of particular importance to the present study is the antecedent of leadership as it pertains to coaches. Bird (1977) stated that coaches stimulate changes in team variables such as cohesion and performance through their behaviours. In fact, research has shown that coaching behaviours are related to both cohesion (e.g., Jowett & Chaundy, 2004; Gardner, Shields, Bredemeier, & Bostro, 1996; Shields, Gardner, Bredemeier, & Bostro, 1997; Westre & Weiss, 1991) and performance (Charbonneau, Barling, & Kelloway, 2001; Garland & Barry, 1990).

To date, the majority of research examining coaching behaviours and outcomes such as cohesion and performance have utilized Chelladurai's (1990, 2007) Multidimensional Model of Leadership (MML). The MML hypothesizes that outcomes are a function of the congruence amongst three types of coaching behaviour: required, preferred, and actual/perceived leader behaviour. That is, a higher degree of congruence

will result in more positive outcomes, such as increased perceptions of cohesion and better team performance. Despite the notion of congruency that is contained in the MML, the majority of research has examined either preferred or actual/perceived coaching behaviours on various outcomes as rated by the athlete (e.g., Bird, 1977; Jowett & Chaundy, 2004; Høigaard, Jones, & Peters, 2008; Riemer & Chelladurai, 1995; Rowold, 2006; Shields et al., 1997; Weiss & Friedrichs, 1986; Zacharatos, Barling, & Kelloway, 2001). However, Chelladurai (2007) noted that there are two types of congruency. One type is referred to as *value* congruence and is the congruence between athletes' perceptions and preferences with respect to their coach's behaviour. Research examining value congruence has been sporadic and provides equivocal results with respect to its impact. Riemer and Chelladurai (1995) found that congruency between the perceived and preferred coaching behaviours indeed impacted athlete satisfaction scores, while subsequent research by Riemer and Toon (2001) found that this was not the case.

The second type of congruency is *perceptual* congruence (Chelladurai, 2007). This refers to the similarity in perceptions of actual behaviours from the perspective of the coach and that of the athletes. It is proposed that this type of congruence provides a greater impact on outcomes than value congruence as it is a reflection of similarity in what *is* rather than what *ought* to be done on the part of leadership (Shields et al., 1997). In fact, Shields et al. established that as the disparity in perceptual congruence increases between athletes and coaches with respect to coaching behaviours, team perceptions of cohesion were found to decrease. In particular, the relationship was found to be stronger in relation to task cohesion than social cohesion.

Research examining the relationship between coaching behaviours and cohesion has operationalized coaching behaviours using the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980), while cohesion has been measured using the Group Environment Questionnaire (GEQ; Carron et al., 1985). The LSS measures five dimensions of coaching leadership behaviour. The first four of these behaviours are Training and Instruction (i.e., behaviours aimed at improving technique), Democratic Behaviour (i.e., the employment of others in decision making), Social Support (i.e., fostering close relationships and concern for individuals well-being), and Positive Feedback (i.e., coach's praise of athletes for good performance) and have all been found to be positively correlated to both task and social cohesion (e.g., Jowett & Chaundy, 2004; Shields et al., 1997; Westre & Weiss, 1991). Conversely, Autocratic Behaviour (i.e., independence in decision making) has been found to be negatively correlated to both task and social cohesion (Shields et al., 1997). This body of research has recently come under criticism, however, for providing only a small piece of the proverbial leadership puzzle, and thus only a small component of the leadership-cohesion relationship within sport (Gomes, Sousa, & Cruz, 2006). That is, the majority of research has operationalized leadership behaviours from a transactional leadership perspective, which are leadership behaviours characterized by an exchange of reward for successful completion of a task (Avolio, 1999). However, a leadership model that may be useful in sport is the Full Range Model of Leadership (Avolio, 1999). This model classifies leadership behaviours along a continuum with laissez-faire (absence of leadership) at one end and transformational leadership at the other with transactional leadership behaviours in the middle. Transformational leadership behaviours, in contrast to transactional behaviours,

focus upon the building of relationships and the empowerment of followers to succeed (Avolio, 1999). Avolio contends that the most effective leaders exhibit both transactional and transformational leadership behaviours. Furthermore, in order for transformational leadership to occur, effective transactional leadership must first be mastered by individuals in a position of leadership (Podsakoff, MacKenzie, Moorman, & Fetter, 1990).

Within sport only one study has examined the relationship between a full range of leadership behaviours and team cohesion using athlete leaders. In particular, Callow, Smith, Hardy, Arthur and Hardy (2009) examined the relationship between transformational leadership of the team captain and cohesion amongst collegiate ultimate Frisbee players. To measure leadership behaviours, the researchers used the Differentiated Transformational Leadership Inventory (DTLI; Hardy et al., 2010) that measures seven leadership behaviours (six transformational, one transactional) and the GEQ (Carron et al., 1985) to measure perceptions of cohesion. The results showed a significant positive relationship between the transformational leadership behaviours of Fostering Acceptance of Group Goals and Promoting Team Work (i.e., behaviours which promote team work and working towards team goals), High Performance Expectations (i.e., behaviours which demonstrate the expectation of performance excellence), and Individual Consideration (i.e., behaviours which see individuals as unique and treat them as such) with task cohesion. Furthermore, a significant positive relationship was found between Fostering Acceptance of Group Goals and Intellectual Stimulation (i.e., behaviours which influence followers to consider new strategies of addressing issues) with social cohesion. Additionally, the transformational behaviour of Appropriate Role

Model (i.e., behaviours which set an example for followers to emulate) was not related to either task or social cohesion. Finally, Contingent Reward (i.e., behaviours which involve a transaction of reward for positive behaviour) was found to be unrelated to either task or social cohesion.

While research has shown a relationship between full range leadership behaviours, albeit athlete leaders, and cohesion, it is surprising that it has not taken into account a full range approach while examining coaching behaviours. In fact, the sporting domain has significant ground to cover if it wishes to use the term “full range” leadership (Gomes et al., 2006). Historically, sport leadership research has examined either transactional (e.g., Westre & Weiss, 1991) or transformational behaviours (e.g., Callow et al., 2009; Charbonneau et al., 2001; Rowold, 2006; Zacharatos, Barling, & Kelloway, 2001) independently from one another. Given that all facets of leadership have the potential to be related to cohesion (Carron, 1982), and coaches have an impact on cohesion and performance (Bird, 1977), it is necessary to adopt a more holistic or comprehensive approach by measuring a fuller range of leadership behaviours simultaneously. Furthermore, it is surprising that few attempts have been made to examine the effects of congruency in perceptions of leadership behaviours compared to other disciplines such as military and organizational psychology. For example, research by Bass and Yammarino (1991) has examined perceptual congruence with respect to naval officers. Officers self-rated full range leadership behaviours and were subsequently rated by subordinates across the same behaviours. Based upon discrepancy scores, officers were placed into categories depending upon whether they *over-evaluated* themselves (i.e., rated themselves higher than subordinates on behaviours displayed),

under-evaluated themselves (i.e., rated themselves lower than subordinates), or perceptions of leadership behaviours were congruent between officers and subordinates (i.e., discrepancy scores were equivalent to zero). Officer groupings were then compared across performance of duties as rated by superior officers as well as recommendation for early promotion as rated by superior officers. It was found that in general officers over-evaluated themselves, however, with respect to specific behaviours it was found that more successful and promotable officers were either more congruent with subordinates or under-evaluated themselves with respect to leadership behaviours (e.g., Inspirational Motivation, Individual Consideration) than those officers who were considered as low performers and deemed to have low promotability.

Therefore, the general purpose of this research was to examine the impact of perceptual congruency, with respect to coaching leadership behaviours, upon perceptions of cohesion and performance using a full range leadership behaviour approach. In order to achieve this general purpose, both elite level varsity coaches and athletes were asked to evaluate the coach's perceived leadership behaviours using a full range perspective (i.e., both transformational and transactional). Therefore, coaches assessed their own full range leadership behaviours and athletes assessed their coach's full range leadership behaviours. Furthermore, athletes assessed team cohesion levels as well as self-rated their perceived levels of performance. Secondary to this general purpose is the comparison of relationships between specific leadership behaviours with cohesion and performance between athletes of differing perceptions (i.e., congruent, over-evaluative and under-evaluative perceptions). Considering the findings of Bass and Yammarino (1991), it was hypothesized that athletes who over-evaluated or are congruent in their coach's

leadership behaviours will have stronger perceptions of cohesion and performance than athletes who under-evaluate their coach's leadership behaviours.

Method

Participants

Forty-nine post-secondary institutions in the province of Ontario were approached seeking consent to contact coaches and athletes. Clearance was granted at 19 institutions (10 universities and nine colleges). Accordingly, all coaches at institutions that granted clearance were approached via e-mail providing information pertaining to the study to enlist their participation, as well as that of their athletes. A total of 250 coaches were contacted. Of these 250 coaches 90 coaches responded to the questionnaire package for a response rate of 36%. Due to ethical constraints a response rate could not be calculated with regard to athletes. Nonetheless, 226 athletes did respond to the questionnaire package. Therefore, a total of 316 complete responses were collected overall between both coaches and athletes. Given that the purpose of the study was to examine the congruency of coaching leadership behaviours between coach and athlete responses, it was critical to have matched responses. Consequently, when coach and athlete data were matched, a total of 60 coaches and 199 athletes were matched together.

Demographic information collected is represented within Appendix A. With respect to coach gender, 48 coaches were male (80%), 11 female (18.3%) with one coach failing to indicate gender (1.7%). Additionally, coaches ranged in age from 23 to 70 years ($M_{\text{age}} = 44.70$; $SD = 13.21$), possessed coaching experience ranging from 1 to 40 years ($M_{\text{experience}} = 16.59$; $SD = 11.56$), and coached their current team from 1 to 35 years ($M_{\text{tenure}} = 8.32$; $SD = 9.09$). Furthermore, coaches represented a wide variety of sports

such as badminton ($n = 3$), basketball ($n = 9$), cross-country ($n = 4$), curling ($n = 2$), field hockey ($n = 1$), figure skating ($n = 1$), golf ($n = 4$), lacrosse ($n = 3$), hockey ($n = 3$), rowing ($n = 2$), rugby ($n = 5$), soccer ($n = 8$), swimming ($n = 2$), tennis ($n = 1$), track and field ($n = 4$), and volleyball ($n = 8$). Finally, with respect to the highest level ever coached, 25 coaches indicated that the varsity level (41.7%) was the highest, 10 provincial (16.7%), 8 national (13.3%), and 23 coaches possessed experience at the international level (38.3%).

Concerning athletes, of the 199 athletes in the final sample, 67 were male (33.7%), 128 were female (64.3%) with four athletes not indicating their gender (2.0%). Additionally, 121 athletes self-identified themselves as a starter (60.8%), 64 as a non-starter (32.2%), while 14 athletes failed to respond (7.0%). Also, athletes ranged in age from 17 to 31 years ($M_{\text{age}} = 20.40$; $SD = 1.91$), had participated in their sport from 1 to 21 years ($M_{\text{experience}} = 8.55$; $SD = 4.66$), were members of their current team for one to five years ($M_{\text{tenure}} = 2.08$; $SD = 1.17$), and were coached by their current head coach for one to six years ($M_{\text{tenure with coach}} = 1.90$; $SD = 1.19$). Given that coaches and athletes were matched, the athletes represented the same sports: badminton ($n = 12$), basketball ($n = 31$), cross-country ($n = 18$), curling ($n = 4$), field hockey ($n = 9$), figure skating ($n = 1$), golf ($n = 8$), lacrosse ($n = 4$), hockey ($n = 6$), rowing ($n = 13$), rugby ($n = 30$), soccer ($n = 23$), swimming ($n = 12$), tennis ($n = 1$), track and field ($n = 11$), and volleyball ($n = 26$). Finally, 124 athletes (62.3%) identified varsity as the highest level of sport they have competed in, with the remaining identifying provincial ($n = 36$; 18.1%), national ($n = 33$; 16.6%), and international ($n = 6$; 3.0%) as the highest level of sport competition.

Categorization of athletes into over- and under-evaluative groupings was done using discrepancy scores. These scores take into account the difference between the athlete's perception of the frequency of specific coaching behaviours and the coach's perception of the same coaching behaviours. In theory, discrepancy scores allowed for three categories to emerge. The first category represented perceptual congruence, which was reflected by a difference score of zero; indicating that both coaches and athletes rated the leadership behaviours the same. The second category represented over-evaluation; that is, athletes rated their coach's behaviours as occurring more frequently than the coach perceived. This was reflected by a positive discrepancy score. The third category represents perceptual under-evaluation on behalf of the athletes; that is, coaches rated their behaviours as occurring more frequently than their athletes. This was reflected by a negative discrepancy score. Discrepancy scores were then re-coded into categorical variables representing these three conditions. All positive discrepancy values were re-coded to a value of positive one which reflected over-evaluation of the specific behaviour. All zero values remained valued at zero and reflected congruent perceptions, while a negative discrepancy score was given a value of negative one and reflected under-evaluation of the specific leadership behaviour. Next, these discrepant values were summed yielding an overall discrepancy score. It should be noted that there were only five cases in which there was a congruent perception and as a result, these cases were added to the over-evaluative condition. Consequently, athlete scores were categorized into one of two groups based on this value. Those participants with zero and positive values were categorized as over-evaluative athletes ($n = 73$). Those with negative values were categorized as under-evaluative ($n = 126$). Atwater and Yammarino (1992)

suggested that this type of categorization method is appropriate when analysis seeks to examine the moderating potential of perceptual congruency.

Measures

Coach behaviours. Athletes and their coaches were asked to assess coaching behaviours by completing two leadership behaviour inventories. Coaches self-rated their own leadership behaviours, while the athletes provided an assessment of their coach's leadership behaviours.

First, the athletes (see Appendix B for athlete specific LSS) and coaches (see Appendix C for coach specific LSS) completed the Leadership Scale for Sports (Chelladurai & Saleh, 1980), which is the most widely used inventory to measure sport leadership behaviours. Within the full range model of leadership, this inventory assesses the transactional component of leadership. The LSS is a 40-item inventory that measures five dimensions of leadership behaviour. The Training and Instruction dimension consists of 13 items and refers to those behaviours which emphasize hard training and the instruction of athletes in the skills, techniques, and tactics of the sport. A sample item reads, "Sees to it that every team member is working to his/her capacity". Democratic Behaviour refers to the coach's decision making process and is characterized by those behaviours which allow participation by the athletes with respect to group goals, practice methods and game tactics. This subscale consists of nine items with a sample item reading, "Asks for the opinion of team members on strategies for specific competitions". Autocratic Behaviour refers to those coaching behaviours which involve independence in decision making. This subscale consists of five items with a sample item reading, "Works relatively independent of other team members". The dimension of Social Support refers

to coaching behaviours which display a concern for the welfare of individual athletes and promote a positive group environment in conjunction with fostering warm interpersonal relationships. This subscale consists of eight items with a sample item reading, “Helps team members with their personal problems”. The final dimension, Positive Feedback, consists of five items and is characterized by those behaviours which reinforce quality athletic performance by rewarding said performance. A sample item reads, “Sees that team member is rewarded for a good performance”.

All items are scored on a 5-point Likert type scale with anchors of 1 = *never* and 5 = *always*. The items for each dimension are summed and averaged to yield an average frequency. Consequently, scores can range from 1 to 5 with higher scores indicating a higher frequency of the leadership dimension. The LSS has been shown to be internally consistent (Loughead & Hardy, 2005), possesses content (Chelladurai & Saleh, 1980), concurrent (Cumming, Smith, & Smoll, 2006), convergent (Gardner et al., 1996), and factorial (Chelladurai & Saleh, 1980) validity.

The second coaching behaviour inventory used in this study assesses the transformational component contained within the full range model of leadership and is the Differentiated Transformational Leadership Inventory (Hardy et al., 2010). The DTLI is a 31-item inventory that measures seven dimensions of leadership (see Appendix D for athlete specific DTLI; see Appendix E for coach specific DTLI). The first dimension, Individual Consideration, contains four items and is characterized by behaviours that pay special attention to the needs of each individual athlete. A sample item reads, “Recognizes that different athletes have different needs”. The second dimension, Inspirational Motivation, refers to coaching behaviours that motivate and inspire athletes

by providing meaning and challenge to the sporting environment and experience. This dimension consists of four items with a sample item reading, “Talks in a way that makes me believe I can succeed”. The third dimension refers to those behaviours which stimulate followers to be innovative by questioning assumptions and reframing problems. This dimension is labeled Intellectual Stimulation and consists of four items with a sample item reading, “Gets me to re-think the way I do things”. The fourth dimension, Fostering Acceptance of Group Goals and Promoting Team Work, consists of three items, and refers to those coaching behaviours which are aimed at promoting cooperation and getting athletes to work together. A sample item characterizing this reads, “Encourages athletes to be team players”. The fifth dimension, identified as High Performance Expectations, encompasses those behaviours which demonstrate expectations of excellence and hard work. This subscale consists of five items and a sample item reads, “Insists on only the best performance”. The sixth dimension is labeled Appropriate Role Model and consists of those coaching behaviours which set an example for athletes to follow that are consistent with the coach’s values. This subscale consists of five items and contains a sample item of, “Leads from the front whenever he/she can”. The final dimension, Contingent Reward, measures transactional rather than transformational leadership. These behaviours are characterized by an exchange of reward for good performance. This subscale consists of six items with a sample item reading, “Praises athletes when they show improvement”.

The DTLI is measured on a 5-point Likert type scale and is anchored by 1 = *not at all* and 5 = *all of the time*. Similar to the LSS, all subscales are summed and averaged yielding an average frequency of the specific leadership dimensions. Consequently scores

may range from 1 to 5 with higher scores indicating higher frequencies of the coaching behaviour. The DTLI has also been shown to be internally consistent as well as possess factorial and predictive validity (Callow et al., 2009; Hardy et al., 2010).

Cohesion. Athletes assessed cohesion using the Group Environment Questionnaire (Carron et al., 1985). The GEQ (Appendix F) is an 18-item inventory measuring four dimensions of cohesion and has been shown to have content (Carron et al., 1985), concurrent (Brawley, Carron, & Widmeyer, 1987), predictive (Terry et al., 2000) and factorial validity (Carron et al., 1985).

The first dimension is labeled Individual Attractions to the Group – Task (ATG-T) and consists of four items. This dimension is best characterized as the individual's personal feelings towards involvement of goal achievement and a sample item reads, "This team does not give me enough opportunities to improve my personal performance". The second dimension, Individual Attractions to the Group – Social (ATG-S) is characterized by an individual's personal feelings towards his/her involvement in social aspects of the team and contains five items. A sample item reads, "For me, this team is one of the most important social groups to which I belong". The third dimension is labeled as Group Integration – Task (GI-T) and is characterized by the similarity in group members' orientation towards group objectives. This dimension consists of five items and a sample item is, "Our team is united in trying to reach its goals for performance". The final dimension, Group Integration – Social (GI-S) refers to similarity in group members' orientation towards attending, and being a part of, social/extra-curricular team events and bonding with teammates. This dimension contains four items and a sample item reads, "Members of our team would rather go out on their own than get together as a team".

All of the items of the GEQ are measured on a 9-point Likert scale anchored at the extremes by 1 = *strongly disagree* and 9 = *strongly agree*. It is important to note that 12 of the 18 original items are negatively worded and therefore must be reverse coded. Similarly to the leadership inventories subscales are summed and averaged meaning that higher scores are indicative of higher perceptions of cohesion.

Performance. Performance was assessed by the athletes using a self-rated inventory based on two organizational psychology inventories (Alper, Tjosvold, & Law, 1998; Chang & Bordia, 2001) that has been recently adapted to sport (Spalding, 2010; Appendix G). In the sport context, Spalding found a two-factor structure that explained 74.70% of the variance in team level performance. The first factor represented was labeled Performance Achievement (PA) that consisted of five items representing an individual's feelings towards team productivity. This factor was also found to have adequate internal consistency ($\alpha = .91$). The second factor was labeled Performance Commitment (PC) and contained 10 items reflecting the degree to which team members were motivated and persisted in achieving optimal performance. This factor too was found to have adequate internal consistency ($\alpha = .96$).

The present study modified the items to reflect an individual's perception of their own performance. A sample item representing Performance Achievement reads "I am very satisfied with my overall performance" while a sample item reflecting Performance Commitment reads "I am committed to producing quality performances". All items are assessed on a 9-point Likert scale with anchors of 1 = *strongly disagree* and 9 = *strongly agree*. This self-rated performance measure has been shown to possess factorial and predictive validity (Spalding, 2010).

Procedure

Clearance was obtained from the University of Windsor's Research and Ethics Board for this research. Coaches were e-mailed to request their participation (Appendix H) as well as the participation of their athletes (Appendix I) along with a description of the study. Participants (coaches and athletes) wanting to participate in the study were directed via a website link to an online questionnaire containing the four aforementioned inventories. Furthermore, participants received a letter of information for their records (Appendix J). Confidentiality and anonymity of responses was guaranteed. Each online questionnaire required approximately 20 minutes to complete. Participants were thanked for their involvement with the study and were directed to a ballot for entry into a draw for one of five \$100 Best Buy gift cards.

Results

Descriptive Statistics

Means and standard deviations were calculated for all measured subscales and are presented in Table 1 for each grouping (over- and under-evaluative groups). Additionally, all Cronbach's alpha values were found exceeded the standard acceptable value of .70 (Nunnally & Bernstein, 1994) with a range between .72 - .94 (see Table 1).

A 2 (group) x 16 (subscale) MANOVA was conducted. The purpose for conducting this analysis was twofold. Firstly, this validated the categorization of athletes into over- and under-evaluation of coaching leadership. Secondly, this test answers the question concerning the first purpose of the current study which was to examine differences in perceptions of cohesion and performance based upon over- or under-evaluation of coaching leadership. The results indicated a significant multivariate effect

(Pillai's trace; $F_{16, 182} = 9.91$, $p < .001$, $\eta^2 = .466$). With respect to coaching leadership behaviours, nine of the 10 behaviours¹ were found to be statistically different between groups, such that over-evaluative athletes possessed greater perceptions of coaching leadership than under-evaluative athletes (see Figure 2). Overall, this finding provides empirical evidence that the categorization of athletes was appropriate as over-evaluative athletes held greater perceptions of coaching leadership behaviours than under-evaluative athletes. The only coaching leadership behaviour that was not statistically significant was Autocratic Behaviour. With respect to cohesion and performance (see Figure 2), over-evaluative athletes perceived greater levels of cohesion on all four dimensions and self-rated their performance on one dimension (i.e., Performance Achievement, $p = .05$) as greater than their under-evaluative counterparts. There was no statistical difference between groups with respect to Performance Commitment ($p > .05$), although there was a trend with over-evaluative athletes self-rating performance as greater than under-evaluative athletes.

Confirmatory Factory Analysis

Prior to the main analyses, Confirmatory Factor Analysis (CFA) was conducted on the four inventories used in the present study. This was done to ensure that items and factor structures of the questionnaires used were valid so that confidence could be placed in the results of the final analysis (Aroian & Norris, 2005). It should be noted that the CFAs were conducted simultaneously for both groupings (i.e., over- and under-evaluative athletes). This was done to ensure multi-group measurement and structural invariance. That is, the inventories possess the same item and factor validity for athletes regardless of

¹ While 12 leadership behaviours were initially examined, two behaviours (Individual Consideration and Contingent Reward) were removed from all analysis due to issues highlighted during Confirmatory Factor Analysis. These results are discussed within the next section.

their grouping (Byrne, 2010). If this condition was found to not exist then results of the subsequent analyses may merely be attributable to poor measurement models. As outlined by Byrne (2010) this methodology involved examining three distinct models across groups in a stepwise fashion. Step one estimated what is known as the unconstrained model; in this model all parameters are free to estimate. In the second step measurement weights (i.e., regression coefficients of items onto factors) are constrained to equal across groups. For model fit to be deemed adequate, and measurement invariance to exist, there must be minimal changes in fit from the unconstrained model. In the third and final step, both measurement weights and structural covariances are constrained to equal between groups. Similar to step two, if model fit is deemed adequate, and there is minimal change in model fit from the unconstrained model, then it possesses both measurement and structural invariance. Further, Little (1997) suggested, with respect to change in model fit, that the change in Tucker-Lewis Index (ΔTLI) value between the unconstrained and subsequently constrained models should be less than or equal to .05. If this criterion is met then the model is said to be invariant between groups.

CFA on coach behaviours. As this was, to the best of the author's knowledge, the first attempt to use two distinct leadership inventories (i.e., LSS and DTLI) to measure a full range of coaching leadership behaviours, an initial model reflective of global leadership was tested in order to gain a better understanding of the interaction between the two inventories. It should be noted that the decision to combine Positive Feedback from the LSS and Contingent Reward from the DTLI subscales was made due to the theoretical overlap between these two constructs. In fact, Positive Feedback can be viewed as a form of Contingent Reward as it is an exchange of encouragement in

response to quality performance. Furthermore, examining items from both subscales indicates content overlap. For example item 36 from the LSS reads “My coach compliments an athlete for his performance in front of others”. Comparatively, item 27 from the DTLI reads “My coach personally praises me when I do outstanding work”. Similarly, item 29 from the DTLI reads “My coach gives me *positive feedback* [italics added] when I perform well”. In light of this an 11-factor global leadership model was tested that used the combined Positive Feedback/Contingent Reward subscales along with the LSS’s Training and Instruction, Democratic Behaviour, Autocratic Behaviour, Social Support subscales and the DTLI’s Individual Consideration, Inspirational Motivation, Intellectual Stimulation, Fostering Acceptance of Group Goals, High Performance Expectations, and Appropriate Role Model subscales. When conducting a CFA various fit indices are used to determine model fit. Acceptable cut-off values state that Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values should be equal to or exceed .90 while Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) values should be less than or equal to .08 (Hu & Bentler, 1999).

The results of the CFA for global leadership showed that the model fit was less than desirable (see Table 2). With the exception of the RMSEA, the other fit indices did not meet the recommended values. Furthermore, it was evident that much manipulation of existing validated item and factor structures would need to take place to achieve acceptable model fit. Stevens (2009) highlighted the dangers of allowing data to purely drive factor structure modification and suggested that it must be a blend of data and theory. Therefore, the decision was made to assess the two coaching leadership

inventories (i.e., LSS and DTLI) by way of CFA separately since they measure transactional and transformational leadership respectively. Interestingly, the results of this CFA provided empirical support that transformational and transactional leadership behaviours are theoretically different forms of leadership.

Transformational leadership was measured using the DTLI (Callow et al., 2009). The DTLI measures six transformational leadership behaviours using 25 items; as such, a six factor model was examined. However, initial analysis revealed a less than acceptable model fit (CFI = .87, TLI = .85, RMSEA = .06, SRMR = .10). Upon further examination it was found that item 3 “My coach considers that I have different strengths and abilities from others” and item 4 “My coach helps team members to develop their strengths” did not significantly predict their theoretical factor of Individual Consideration (item 3 $p = .14$, item 4 $p = .08$). For a CFA to be conducted each factor must have a minimum of three items (Byrne, 2010). In light of this, along with the fact that Individual Consideration did not significantly correlate with the other transformational leadership behaviours of High Performance Expectations, Fostering Acceptance of Group Goals or Intellectual Stimulation, the decision was made to delete this factor from all subsequent analysis.

The deletion of the Individual Consideration subscale improved model fit, however, it was still below the recommended cutoff values. Therefore the next step was to examine for item cross-loading and item redundancies. The results showed that item 21 “My coach leads from the front whenever he/she can” cross-loaded onto several factors other than its own factor of Appropriate Role Model and additionally possessed high error term covariance with two items as witnessed by larger Modification Index (MI)

values (e.g., item 16 from High Performance Expectations; $MI = 7.37$ and item 15 from Fostering Acceptance of Group Goals; $MI = 10.26$). Therefore, item 21 from Appropriate Role Model was deleted.

Item 12 from the Intellectual Stimulation subscale (“My coach tries to help us work out how to solve problems”) was found to be problematic with the remaining three Intellectual Stimulation items. While the item in question does sound reasonably representative of the Intellectual Stimulation factor, the spirit in which it is written is considerably different from the remaining three items. In particular, items 9, 10 and 11 (see Appendix D) are written in the spirit of coaches allowing athletes to solve their own problems by providing prompts or cues. However, item 12 is different to some extent as it places the coach directly in the middle of the problem solving process, almost as if they were the one solving the problem for the athlete. Additionally, item 12 was found to cross-load with the Fostering Acceptance of Group Goals factor ($MI = 9.86$) and the Inspirational Motivation factor ($MI = 4.85$). In view of these findings, item 12 was deleted.

Upon deletion of the Individual Consideration factor and items 12 and 21, it was found that the transformational leadership measure contained adequate fit as seen in Table 2. This resulted in a five factor model of transformational leadership. Additionally, the change in TLI (ΔTLI) value was found to be .02; considerably less than the acceptable .05. This demonstrates that the final model of transformational leadership is invariant between the over- and under-evaluative groups.

Transactional leadership was measured using the LSS (Chelladurai & Saleh, 1980). As noted earlier, the transactional leadership dimension of Contingent Reward

from the DTLI (Callow et al., 2009) was combined with Positive Feedback into one factor since they conceptually measure similar constructs. As such a five factor model of transactional leadership, containing 46 items, was tested.

The first model of transactional leadership possessed poor fit ($CFI = .72$, $TLI = .70$, $RMSEA = .06$, $SRMR = .12$). As such, modification of this model was undertaken via item deletion and was undertaken in a stepwise fashion addressing the issue most impacting model fit first, following through to the smallest. These modifications, while highlighted by statistical evidence, were only deemed prudent if backed by sound theoretical considerations (Stevens, 2009).

Addressing items from specific subscales saw the deletion of four of the 13 items from the Training and Instruction factor; items 8, 9, 12 and 13 (Appendix B). Specifically, items 8 and 12 cross-loaded on factors other than Training and Instruction. Additionally, item 13 possessed a distinctly large MI value with items 3, 4, 5, 12, 21, and 24 indicating overlap. For instance, the MI value with item 12 was 20.48. Lastly, item 9 cross-loaded onto the Social Support dimension and overlapped with item 18. As such these four items were deleted from this dimension.

Within the Democratic Behaviour factor four of the 9 items were deleted; items 19, 20, 21 and 22 (Appendix B). Item 19 was found to have considerable overlap with item 21 ($MI = 35.77$). It would appear that item 19 is phrased in such a way in which the coach is not necessarily democratic, rather the coach is demonstrating laissez-faire leadership behaviour as the item reads “My coach lets the athletes try their own way even if they make mistakes”. Similarly, item 21 reads “My coach lets athletes work at their own speed”. Again, this seems to represent coaches abstaining from making a decision,

rather than allowing others to actively participate in the decision making. As such these two items were removed from subsequent analysis. Furthermore, item 21 was found to possess considerably large MI values; thus overlapping with items 13, 18, and 22.

Statistically, item 22 was found to possess overlap in content between several items such as 1, 20, 21, 18, 31, and 37 as well as cross-loading onto the Autocratic Behaviour dimension of leadership. As Autocratic Behaviour and Democratic Behaviour are conceptually viewed as distinctly different dimensions this item was deleted. Finally, item 20 was not retained as it was found to cross-load onto the Social Support factor.

With respect to the Autocratic Behaviour component of transactional leadership only one item from the 5 was deleted; item 24. This item reads “My coach does not explain his/her actions”. This item was removed as it was found to cross-load strongly on two other factors, Democratic Behaviour and Training and Instruction. As the item was loading onto three factors it was removed from subsequent analysis.

With respect to Social Support, three of the 8 items were deleted; items 28, 29, and 30. Interestingly, these three items were found to have significant redundancies with each other. Item 28 reads “My coach helps athletes with their personal problems” while item 29 reads “My coach helps members of the group settle their conflicts”. The MI value between these two items was 44.91. This MI value is reasonable as the items are similar in nature. Furthermore, item 30 was found to possess significant overlap with item 28. Item 30 reads “My coach looks out for the personal welfare of the athletes”. Again the content and spirit of these two items is quite similar in nature and is shown by a MI value of 20.51. It should also be noted that these three items contain a somewhat different perspective than the remaining five Social Support items (Appendix B). The previously

mentioned three items appear to deal with the coach reaching out to the athletes to solve personal problems and issues while the remaining five items appear to deal more with a mutual exchange of friendship between coach and athletes. In light of this evidence items 28, 29, and 30 were removed from the final measurement model.

As mentioned previously, the final factor of transactional leadership combined Positive Feedback from the LSS and Contingent Reward from the DTLI into one factor due to theoretical overlap; as such item redundancy was expected. Indeed, the results indicated that there was a high level of redundancy and cross-loading. Specifically, the Contingent Reward items possessed considerable overlap between the Positive Feedback items and cross-loaded onto other transactional leadership factors. For example item 28 and 29 of the DTLI were found to contain considerable overlap ($MI = 22.21$). Item 28 reads “My coach always recognizes our achievements” while item 29 reads “My coach gives us positive feedback when we perform well”. Both are a form of recognition for good performance. Additionally, item 27 from the DTLI was found to be redundant when considered with item 40 of the LSS with an MI value of 15.64. Item 27 reads “My coach personally praises us when we do outstanding work” while item 40 reads “My coach gives credit when credit is due”. In light of the overlap in content between items from the DTLI and considerable cross-loading of these items (e.g., item 31 on AB), it was decided to preserve the harmony of the LSS by removing all of the Contingent Reward items. Lastly with the removal of the Contingent Reward items, the five remaining items dealt exclusively with the original Positive Feedback subscale. An examination of these items indicated a redundancy between items 39 and 40. Item 39 reads “My coach expresses appreciation when an athlete performs well” while item 40 reads “My coach gives credit

when credit is due”. Additionally, item 39 was found to possess overlap with two items from the Positive Feedback subscale (item 37, MI = 13.92; item 38, MI = 9.675).

Therefore, it was decided to delete item 39 first. However, the deletion of item 39 also revealed that item 40 strongly cross-loaded onto the Social Support factor, while also overlapping with items 10, 34 and 35 (the latter two from Social Support). Consequently, item 40 was also deleted. As a result three of the original five items from the Positive Feedback dimension were retained in the final model.

Taken together, item trimming resulted in a five factor model of transactional leadership consisting of 26 items. Additionally model fit was found to be acceptable, and the change in TLI values was substantially less than the .05 recommendation, in fact it was .01. This means that the final model of transactional leadership is invariant between over and under-evaluative athletes. Overall, 10 leadership behaviours were retained (five transformational and five transactional) for the subsequent analyses.

CFA on cohesion. Cohesion was measured using the GEQ (Carron et al., 1985) that measures cohesion using four dimensions with 18 items. In the initial CFA, the results indicated that the four factor model was close to meeting acceptable cutoff values (CFI = .90, TLI = .88, RMSEA = .05, SRMR = .09). Upon examination of the models modification indices it was shown that item 15 (“Our team would like to spend time together in the off-season”) was potentially overlapping in content with two items within the ATG-S dimension of cohesion. More specifically, item 5 which reads, “Some of my best friends are on this team” (MI = 10.33) and item 7 which reads, “I enjoy other parties rather than team parties” (MI = 7.28). As this was found to be the case, and giving

consideration to the fact that these items are all oriented towards the social component of cohesion, item 15 was removed from further analysis.

With item 15 removed, a second CFA found that the four factor model of cohesion possessed acceptable fit as demonstrated by fit index values found in Table 2. All items were found to significantly load on their respective factors at a $p < .05$ level for both over-evaluative and under-evaluative athletes. Furthermore, the four dimensions of cohesion were found to significantly correlate with each other at the $p < .05$ level. These correlations were significant for both over- and under-evaluative athletes. Additionally, the change in TLI values should be highlighted from the unconstrained model through to the model in which measurement weights and structural covariances were constrained equal between groups. The change in value did not exceed the .05 limit suggested by Little (1997), in fact the change in value was only equal to .02. This finding highlighted the measurement and structural invariance of the GEQ as a measurement of cohesion for both over- and under-evaluative athletes.

Performance. Performance was measured using a self-report performance measure utilized by Spalding (2010). Initially an Exploratory Factor Analysis (EFA) was conducted in order to determine the factor structure. This step was deemed necessary since this performance inventory has not been extensively used in previous sport-related research. It was hypothesized that two factors for performance, Performance Achievement (PA) and Performance Commitment (PC) would emerge as this was the original factor structure of the inventory when used by Spalding (2010; see Appendix G). Following Stevens' (2009) EFA guidelines, a principle component analysis with orthogonal rotation was used. Stevens also suggests that in order for items to be deemed

as significantly loading upon a specific factor, correlation coefficients and their critical values should be based upon sample size. Stevens suggests that these values should be doubled. Therefore, as our sample consisted of 199 athletes, the coefficient value for a sample of 200 was utilized. The suggested critical value was .182 which was doubled and resulted in a cutoff coefficient value of .364.

The results of the EFA suggested a two factor structure; identical to the factor structure reported by Spalding (2010). In particular, four items (items 1, 2, 5 and 9 in Appendix G) were found to load onto Performance Achievement while the remaining nine items (items 3, 4, 6, 7, 8, 10, 11, 12 and 13 in Appendix G) were found to load onto Performance Commitment. Furthermore, the results indicated that the 13-item inventory explained 66.68% of the variance in self-reported performance.

A CFA was also employed to ensure a measurement model that was parsimonious with the collected data. As in the previous CFAs, this analysis was conducted across groups to ensure that measurement and structural invariance existed. The results of this CFA showed that some items were cross-loading or contained redundancies due to high error term correlation. This was initially witnessed through poor model fit (CFI = .82, TLI = .78, RMSEA = .08, SRMR = .05). Overall, items 3, 5, 12, and 13 were deleted.

Modifications to the questionnaire were made in a stepwise fashion. Firstly, it was shown that items 12 and 13 possessed high error term covariance, witnessed by a high MI value (62.44). Item 12 reads “I have successfully implemented strategies to improve my performance” while item 13 reads “I have successfully implemented game plans to be a more successful athlete”. It was decided that item 12 be removed from further analysis as it was found to have statistical overlap with multiple items (e.g., item 2; MI = 4.00, item

3; $MI = 5.41$, and item 4; $MI = 7.70$). Secondly, items 3 and 4 were found to have considerable overlap in content ($MI = 39.96$). Specifically, item 3 reads “I feel a strong commitment to achieving the best possible outcome” while item 4 reads “I am highly committed to achieving my goals”. Due to statistical and theoretical overlap between these two items item 3 was deleted as the phrasing refers to outcomes, while item 4 refers specifically to goals. It was felt that the word goals, conveys a more concrete construct rather than outcomes which is rather ambiguous in nature. Thirdly, the same was found between items 2 and 5 ($MI = 10.02$). Item 5 reads “I am highly satisfied with the outcomes achieved” while item 2 reads “I am very satisfied with my overall performance”. Similar to items 3 and 4 the choice was made to retain item 2 as it refers specifically to performance rather than outcomes achieved. Finally, item 13 was found to contain overlap between item 4 ($MI = 4.14$) and item 9 ($MI = 4.11$). As such item 13 was removed from the measurement model. Contained within Table 2 are all values for the examined fit indices of the final model. Overall, these values indicate acceptable model fit. It is important to highlight the measurement and structural invariance of the performance measurement tool between over and under-evaluative athletes the change in TLI values was less than .001; well below the recommended cutoff of .05.

Multiple Group Path Analysis

Multiple group path analysis is a variant of path analysis that allows for the simultaneous estimation of predictive relationships in multiple independent and multiple dependent variables between groups (Hayduk, 1987; Norris, 2005). Therefore, the purpose of this analysis was to examine the relationship of over- and under-evaluation of leadership behaviours on perceptions of cohesion and performance.

The independent or predictor variables were the 10 coaching leadership behaviours, while the dependent variables the four dimensions of cohesion and two dimensions of performance. Given that two groups (i.e., over- and under-evaluative athletes) were being examined simultaneously, a total of 120 relationships were tested.

In the first stage of the path analysis, a saturated model was analyzed across the over- and under-evaluative groups (see Figure 2). The results showed that model fit was less than adequate ($\chi^2 = 300.901$, $df = 30$, $p < .001$, $CFI = .71$, $TLI = -1.33$, $RMSEA = .21$, $SRMR = .09$). This less than ideal model fit was expected since it is common at this stage to have many non-significant relationships that require removal. As such, Modification Indices (MI) were examined and it was found that all error terms of the dependent variables possessed covariance as witnessed by high MI values. ($MI_{PA \leftrightarrow PC} = 35.718$; $MI_{GI-S \leftrightarrow GI-T} = 16.733$; $MI_{ATG-S \leftrightarrow GI-S} = 26.556$; $MI_{ATG-T \leftrightarrow GI-T} = 10.848$; $MI_{ATG-S \leftrightarrow GI-T} = 7.598$; $MI_{ATG-T \leftrightarrow PA} = 4.505$; $MI_{ATG-T \leftrightarrow GIS} = 4.218$.) This result was not surprising since it is well documented that there is a positive cohesion-performance relationship (Carron et al., 2002). Furthermore, it follows that dimensions of cohesion should possess theoretical overlap as should dimensions of performance. Therefore, all error terms of the dependent variables were correlated with one another.

Following the correlation of error terms, the model was re-assessed and the removal of non-significant pathways began in order to finalize a parsimonious model between over- and under-evaluative groups. It should be pointed out that if a pathway was significant in one group, the pathway must remain in the other group even if that pathway may be non-significant. However, if a pathway was non-significant in both groups, it was deleted from further analysis. This process was repeated in a stepwise

fashion until only significant pathways remained, which resulted in an acceptable model fit ($\chi^2 = 112.98$, $df = 78$, $p < .01$, CFI = .96, TLI = .90, RMSEA = .05, SRMR = .07). This resulted in a total of 21 significant relationships between the predictors of leadership and the outcomes of cohesion and performance for the two groups (see Table 3).

Specifically, with respect to over-evaluative athletes nine significant relationships were found, of which five were unique to athletes in this group: High Performance Expectations was related to the cohesion dimensions of Group Integration – Task and – Social, and Performance Commitment; Fostering Acceptance of Group Goals was associated with Group Integration – Task; and Social Support related to Individual Attractions to the Group – Social (Figure 4).

In regards to under-evaluative athletes, the findings indicated 12 significant relationships, eight of which were unique to this group. Six of these unique relationships were positive in nature and are as follows: Inspirational Motivation to Performance Commitment; Intellectual Stimulation to Individual Attractions to the Group – Task; Training and Instruction to Group Integration – Task and Performance Achievement; and Positive Feedback to Individual Attractions to the Group – Task. The three unique relationships, which were negative in nature, are as follows: Appropriate Role Model was found to be negatively related to Individual Attractions to the Group – Task, while Autocratic Behaviour was negatively related to the Group Integration – Task and – Social (Figure 5).

Finally, there were four significant relationships that were shared between the over- and under-evaluative groups. Three of these relationships were with Fostering Acceptance of Group Goals. This coaching leadership behaviour was found to positively

relate to Individual Attractions to the Group – Task and – Social, and Group Integration – Social. Additionally, Training and Instruction was found to positively relate to Individual Attractions to the Group – task.

The second step in this analysis involved examining whether these relationships were statistically different between groups. This is done by calculating a Chi-square difference statistic between unconstrained and constrained models (Kline, 1998). Kline stated that each relationship within the model must be constrained to equal between groups in a stepwise fashion (i.e., one relationship at a time). For each constrained model a new Chi-square statistic is calculated and is in turn examined for statistical difference from the unconstrained model by way of a Chi-square difference test. If the models (i.e., unconstrained and constrained) significantly differ at the .05 level then the pathways are said to be significantly different between groups. Results of the Chi-square difference test (see Table 4) indicated that with the exception of three pathways, all relationships were significantly different between groups. That is, group membership (i.e., over- or under-evaluative), moderated the relationship between specific leadership behaviours and perceptions of cohesion and performance. The three relationships which were statistically equal between groups were that of Training and Instruction as it relates to Individual Attractions to the Group – Task, and Fostering Acceptance of Group Goals as it relates to both Individual Attractions to the Group – Task and – Social.

Discussion

The primary purpose of the present study was to examine the association of perceptual congruency, with respect to coaching leadership behaviours, upon perceptions of cohesion and performance using a full range leadership behaviour approach. The

results indicated that over-evaluative athletes experienced greater perceptions of cohesion and performance than under-evaluative athletes. A secondary purpose was to examine relationships between specific leadership behaviours with cohesion and performance. As such a multi-group path analysis was conducted across over- and under-evaluative groupings of athletes. In general, the results indicated that evaluative perceptions moderate the relationships between specific coaching behaviours and outcomes of cohesion and performance.

The present study tested the congruency hypothesis contained with the MML (Chelladurai, 2007). When the notion of congruence has been examined, sport leadership research has typically focused on value congruence (Aoyagi, Cox, & McGuire, 2008; Chelladurai, 1984; Riemer & Chelladurai, 1995; Riemer & Toon, 2001; Shields et al., 1997) with little consideration for perceptual congruence. While value congruence research has found equivocal support for Chelladurai's (2007) contention that congruency is positively related to team outcomes such as cohesion and satisfaction, Shields et al. (1997) noted that perceptual congruence plays a more pivotal role in terms of positively impacting cohesion. Furthermore when the relationship between perceptual congruence of leadership behaviours and cohesion has been examined, research has operationalized leadership behaviours primarily using the LSS (e.g., Laughlin & Laughlin, 1994; Shields et al., 1997) and cohesion has been measured using a two-factor model instead of its original four factors (e.g., Shields et al., 1997). The findings of the current study extended previous research on several fronts. Firstly, the present study examined four dimensions of cohesion. In particular, prior research examining congruency and cohesion has combined dimensions into its task and social components. While the present study

highlighted that the task and social distinction was important, the distinction between individual and group level perceptions was also a key factor when examining perceptual congruence as all four dimensions of cohesion possessed unique relationships with coaching leadership behaviours. Secondly, the present study extended not only the leadership congruency-cohesion literature but also coaching leadership behaviours in general by measuring both transformational and transactional leadership perspectives. Thirdly, an addition to current literature arises from the present study's operationalization of congruence. Typically, research examining perceptual congruence has operationalized it on a continuum ranging from non-congruent to congruent. As such, researchers have scored congruent perceptions from highly congruent (e.g., 5 out of 5) to non-congruent perceptions (e.g., 0 out of 5). However, the present research operationalized congruence by taking into account the directionality of non-congruence by categorizing athletes as over- or under-evaluative of their coach's leadership. This categorization takes into consideration the fact that individual perception's dictate their realities (Kelly & Thibaut, 1978). Consequently, the results of the present study challenge the tenet held by past research findings (e.g., Chelladurai, 2007; Shields et al., 1997) that congruent perceptions of coaching leadership behaviours possessed the most positive relationships with outcomes such as cohesion. It is possible that this state of over-evaluation by athletes may mimic that of congruent perceptions and should be considered in future research.

Over-evaluative athletes perceived, in general, stronger perceptions of coaching leadership behaviours, cohesion, and performance. However, that is not to say perceptions of leadership in under-evaluative athletes have no relationship to individual's perceptions of cohesion and performance. In fact, in this group of athletes a greater

number of coaching leadership behaviours, a ‘fuller range’ of coaching leadership behaviours if you will, were found to be related to cohesion and performance.

Specifically, seven of 10 coaching leadership behaviours were related to cohesion and performance for under-evaluative athletes while only four coaching leadership behaviours were related to cohesion and performance for over-evaluative athletes.

Considering the hallmark of transactional leadership is an exchange of reward for quality performance (Avolio, 1999) it may be for this very reason that a greater array of transactional leadership behaviours were found to relate more strongly for under-evaluative athletes; especially when considering that this form of leadership is required before transformational leadership can take place (Podsakoff et al., 1990). In other words, there may be a developmental process that helps to explain the current findings. For under-evaluative athletes, they perceive transactional leadership behaviours to be more important for outcomes such as cohesion and performance. However, as the relationship develops between themselves and their coach, athletes may transition to a position in which they over-evaluate their coach’s behaviour and may become more receptive to transformational types of leadership.

When considering transactional coaching leadership behaviours, all significant relationships were in the expected directions based on prior research (e.g., Jowett & Chaundy, 2004; Westre & Weiss, 1991). Positive Feedback and Social Support were positively related to cohesion while Autocratic Behaviour was found to be negatively associated with cohesion. Not surprising, these results further strengthen the existing knowledge concerning the nature of the relationship between coaching and cohesion. Interestingly, however, was the fact that these relationships significantly differed between

over- and under-evaluative athletes. In fact, the only relationship that was similar was in reference to Training and Instruction as it relates to Individual Attractions to the Group – Task. It has been noted that by displaying expertise with respect to the sport itself, be it techniques, tactics or strategies, there is the potential for respect to be developed between coach and athletes and as such task cohesion can be enhanced (Potrac, Jones, & Armour, 2002).

As for transformational leadership behaviours, it was shown that regardless of evaluative perceptions (under or over) of the coach, transformational coaching leadership behaviours have the potential to positively impact cohesion and performance. Surprisingly the one exception to the above statement was the coaching behaviour of Appropriate Role Model. Insofar as similarities in relation to past research (i.e., Callow et al., 2009), the transformational coaching behaviour of Fostering the Acceptance of Group Goals was found to positively related to all four dimensions of cohesion. It should be noted that this relationship was found for both over- and under-evaluative athletes. Similarly, Callow et al. found that Fostering the Acceptance of Group Goals was related to both task and social cohesion. These findings also align favourably with that of Senécal, Loughhead, and Bloom (2008) who found that cohesion was positively related to goal setting. It follows that if the coach can serve as a driving force behind goal setting then cohesion will flourish in this type of environment; regardless of athlete perception of the coach.

Additionally, there were several differences between over- and under-evaluative athletes regarding the relationships between coaching leadership behaviours and the outcomes of cohesion and performance. Firstly, in regard to the relationship between the

coaching behaviour of Inspirational Motivation and the performance dimension of Performance Commitment, the difference between over- and under-evaluative athletes may be attributable to a ceiling effect highlighted by the high mean value amongst over-evaluative athletes. Over-evaluative athletes may feel that they are provided with so much of this behaviour from the coach that the intended effect is rendered moot.

Secondly, the results showed that for under-evaluative athletes there was a relationship between the coaching dimension of Intellectual Stimulation and cohesion. Callow et al. (2009) posited that this form of leadership behaviour is most prominent in conflict resolution situations. It is plausible that under-evaluative athletes may be more prone to conflict than over-evaluative athletes and as such cohesion levels can be improved by the coach engaging in conflict resolution with under-evaluative athletes while this type of leadership behaviour is not as critical when coaching over-evaluative athletes. Thirdly, it was found that coaching leadership behaviour of High Performance Expectations was positively related to the outcomes of cohesion and performance for only over-evaluative athletes. Callow et al. (2009) noted that High Performance Expectations were a stronger predictor of cohesion for those teams which performed at a higher level. Over-evaluative athletes may feel that they achieve a higher level of performance, are willing to be pushed to further commit to quality performances, and are therefore receptive to coaches engaging in this type of coaching behaviour. Finally, while the aforementioned relationships were in the expected direction, the one exception was the negative relationship found between the coaching leadership behaviour of Appropriate Role Model and cohesion. While the relationship was non-significant for over-evaluative athletes, it was significant and negative for under-evaluative athletes. This leadership dimension has

been found to be unrelated to cohesion when sampling athlete leaders (Callow et al., 2009) but has been positively related to trust in business (Podsakoff et al., 1990) and self-confidence, resilience, and training satisfaction in the military (Hardy et al., 2010). Thus, it appears that this leadership behaviour primarily influences outcomes that are more personal in nature such as trust and self-confidence, or the individual component of cohesion as witnessed in the current study.

From a theoretical standpoint the findings of the current study support the notion of full range leadership. It was found that both transactional and transformational coaching leadership behaviours have the potential to positively impact cohesion and performance. This type of result challenges the purported status that transformational leadership is the most effective form of leadership (Avolio, 1999). Overall the findings of the present research are an important reminder for coaches that their leadership is not perceived the same by all athletes, and a “one-size-fits-all” approach is probably less than desirable. Concerted efforts by a coach to display only one aspect of full range leadership (e.g., solely transformational as this is proposed to be most effective) may be in vain; or, at the least, may only have a positive impact on a portion of their athletes. Furthermore, it is not only transformational leadership that will allow for the best outcomes.

Consequently, transactional leadership actually holds considerable benefit for perceptions of cohesion for under-evaluative athletes. From a practical perspective, it would appear beneficial for coaches to consider a leadership approach defined by being an authentic leader (Avolio & Gardner, 2005).

Authentic leadership is characterized by an acute self-awareness which allows leaders to act in a manner consistent with their values, identity, emotions, and motives

(Gardner, Avolio, Luthans, May, & Walumbwa, 2005). Furthermore, Avolio and Gardner (2005) contend that leader self-awareness can facilitate more authentic and transparent relationships between leader (e.g., coach) and follower (e.g., athlete). Embracing a relationship between coach and athlete in which the hallmarks are openness and truthfulness, may help to develop mutual respect, which is necessary for efficacious coaching (Chase, Feltz, Hayashi, & Hepler, 2005). Furthermore, authentic leaders have been shown to facilitate trust in organizational settings (Avolio & Gardner, 2005). Additionally, trust has been found to operate as a mediator between transformational leadership and organizational performance (Bartram & Casimir, 2007).

This begs the question how coaches can become more authentic in nature in order to display the transactional and transformational leadership behaviours that will foster enhanced perceptions of cohesion and performance. One method is through the use of what is known in the organizational domain as 360° feedback. This type of feedback has been shown to increase leadership effectiveness due to its comprehensive approach (Thach, 2002). Within the organizational literature 360° feedback has been found to be one of the best methods of increasing individual's self-awareness (Shipper & Dillard, 2000), which is required to develop into an authentic leader.

The 360° feedback approach uses multi-rater or multi-source types of feedback. The purpose of this form of feedback is to collect information from a wide variety of sources regarding perceptions of an individual's behaviour and the impact of that behaviour (Lepsinger & Lucia, 2009). While traditional evaluations are either in a top down (e.g., leader to follower) or bottom up (e.g., follower to leader) direction, 360° feedback utilizes not only these two sources of feedback, but also feedback from peers

(Thach, 2002). In this way a comprehensive image of individual behaviour patterns can be created and a developmental plan can be created that is tailored to the individual.

In organizational settings the predominant methodologies used in 360° feedback are: (a) questionnaires, and (b) interviews (Lepsinger & Lucia, 2009). Multiple modes of feedback have been shown to be more effective than using only one method of feedback (e.g., solely questionnaire feedback; Lepsinger & Lucia, 2009). As a coach, 360° feedback can be worked into the athletic program. For example, during team meetings there can be time set aside for an open forum of discussion providing the coach with feedback. Of course, it may be difficult in this public setting for athletes to feel comfortable giving feedback. Therefore, it may be best for coaches to conduct these meetings in a private one-on-one setting between themselves and one athlete at a time. It should be noted that this form of 360° feedback is more time consuming in nature and would require an analysis of responses for themes and patterns much like the qualitative research process (Lepsinger & Lucia, 2009). However, an alternative to this would be to follow a computerized method in a modular format. One possibility would be to create specific modules that assess points of interest at key times throughout the season (e.g., pre-season, start of season, mid-season, end of season). For example, one module prior to the start of the season could engage in examining what expectations athletes have of the leadership emanating from the coach and the team. This information could be synthesized and used to develop a goal-setting plan that both coach and athlete have involvement in creating. Once goals have been set, they can be monitored in future modules allowing the team to track their progress towards their objectives.

A few limitations should be pointed out. With respect to research design, the cross-sectional nature of the study provides a snapshot of the team environment. A longitudinal approach would be beneficial in the future to facilitate examining causality rather than the inferences that are drawn from the cross-sectional design. Additionally, it must be noted that the sample characteristics reflect that of a varsity coach and athlete population, consequently the results should be interpreted with this in mind. Finally, the self-report performance measure used in this study has not been used extensively within sport. Moreover, the two factor structure may be expanded upon as this limited dimensionality may not adequately capture performance and all of its facets. However, given that a factor structure identical to that of Spalding (2010) was found it does show promise as a useful measurement tool of self-reported performance in sport.

With regards to future research it may be prudent to adopt a line of study regarding authenticity, trust, and the use of 360° feedback in the sporting environment. While the present research does not explicitly examine this avenue of leadership, it does provide rationale for its future examination. If perception creates reality as Kelley and Thibaut (1978) suggest what better way for coaches to understand the reality of the team environment than by actively engaging in transparent relationships between themselves and athletes. By soliciting comprehensive feedback coaches may prove to be more effective in their usage of transformational and transactional leadership in the long term. Furthermore, engaging in research examining characteristics of coaches (e.g., coaching success and coaching experience) that are evaluated by athletes in a manner that is congruent or over-evaluative may also prove worthwhile as it may provide further insight in to understanding effective coaching patterns.

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Table 1

Descriptive Statistics for Over and Under-Evaluative Athlete Perceived Coaching Behaviours, Cohesion and Performance

Variable	α	Over-Evaluative		Under-Evaluative	
		M	SD	M	SD
1. Inspirational Motivation	.91	4.59	0.53	3.89	0.78
2. Intellectual Stimulation	.91	4.36	0.62	3.28	0.80
3. Fostering Acceptance of Group Goals	.86	4.67	0.45	4.01	0.77
4. High Performance Expectations	.87	4.21	0.69	3.92	0.84
5. Appropriate Role Model	.90	4.43	0.66	3.47	0.96
6. Training and Instruction	.94	4.41	0.48	3.64	0.68
7. Democratic Behaviour	.90	4.12	0.66	3.11	0.92
8. Autocratic Behaviour	.77	2.42	0.87	2.53	0.70
9. Social Support	.85	2.89	0.98	2.73	0.82
10. Positive Feedback	.89	4.01	0.81	3.51	0.77
11. Individual Attraction to Group – Task	.72	7.46	1.55	6.58	1.84
12. Individual Attraction to Group – Social	.75	7.56	1.22	6.75	1.65
13. Group Integration – Task	.74	6.99	1.39	6.18	1.55
14. Group Integration – Social	.72	6.77	1.49	6.30	1.72
15. Performance Achievement	.84	6.84	1.56	6.40	1.47
16. Performance Commitment	.92	8.01	1.17	7.79	1.01

Note. Scores for all leadership variables range from 1 (*never*) to 5 (*always*). Scores for all cohesion and performance variables range from 1 (*strongly disagree*) to 9 (*strongly agree*).

Table 2

Confirmatory Factor Analysis (CFA) Fit Indices Values for Final Measurement Models

Model	Chi-Square	df	Sig.	CFI	TLI	Δ TLI	RMSEA	SRMR
1. Global Leadership								
a. Unconstrained	8861.67	4444	.000	.60	.57	-----	.07	.11
b. Measurement Weights	9017.85	4513	.000	.59	.57	.00	.07	.18
c. Structural Covariances	9087.30	4568	.000	.59	.58	.01	.07	.14
2. Transformational Leadership								
a. Unconstrained	484.93	284	.000	.91	.90	-----	.06	.09
b. Measurement Weights	548.11	303	.000	.89	.88	.02	.06	.18
c. Structural Covariances	561.19	313	.000	.89	.88	.02	.06	.14
3. Transactional Leadership								
a. Unconstrained	743.22	578	.000	.92	.91	-----	.04	.09
b. Measurement Weights	794.76	604	.000	.91	.91	.00	.04	.12
c. Structural Covariances	813.26	614	.000	.90	.90	.01	.04	.11
4. Group Environment Questionnaire								
a. Unconstrained	270.76	196	.000	.92	.90	-----	.04	.09
b. Measurement Weights	296.31	212	.000	.91	.90	.00	.05	.12
c. Structural Covariances	315.36	218	.000	.89	.88	.02	.05	.12
5. Performance Questionnaire								
a. Unconstrained	111.61	52	.000	.95	.93	-----	.08	.05
b. Measurement Weights	125.07	59	.000	.94	.93	.00	.08	.07
c. Structural Covariances	131.96	62	.000	.94	.93	.00	.08	.09

Note. df = degrees of freedom; Sig. = significance; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; Δ TLI = Change in Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

Table 3

Significant Leadership Behaviour Relationships with Cohesion and Performance for Over- and Under-Evaluative Athletes

Relationship	Over-Evaluative		Under-Evaluative	
	β	p	β	p
1. IM \rightarrow PC	----	-----	.28	<.001
2. IS \rightarrow ATG-T	----	-----	.16	.021
3. AGG \rightarrow ATG-T	.22	.026	.26	.003
4. AGG \rightarrow ATG-S	.33	.001	.34	<.001
5. AGG \rightarrow GI-S	.35	.001	.21	.020
6. AGG \rightarrow GI-T	.37	<.001	----	-----
7. HPE \rightarrow GI-S	.22	.021	----	-----
8. HPE \rightarrow GI-T	.28	.004	----	-----
9. HPE \rightarrow PC	.29	<.001	----	-----
10. ARM \rightarrow ATG-T	----	-----	-.33	<.001
11. TI \rightarrow ATG-T	.47	<.001	.31	<.001
12. TI \rightarrow GI-T	----	-----	.19	.042
13. TI \rightarrow PA	----	-----	.15	.037
14. AB \rightarrow GI-S	----	-----	-.19	.029
15. AB \rightarrow GI-T	----	-----	-.19	.013
16. SS \rightarrow ATG-S	.26	.003	----	-----
17. PF \rightarrow ATG-T	----	-----	.32	<.001

Note. IM = Inspirational Motivation; IS = Intellectual Stimulation; AGG = Fostering Acceptance of Group Goals; HPE = High Performance Expectations; ARM = Appropriate Role Model; TI = Training and Instruction; AB = Autocratic Behaviour; SS = Social Support; PF = Positive Feedback; ATG-T = Individual Attractions to Group – Task; ATG-S = Individual Attractions to Group – Social; GI-S = Group Integration – Social; GI-T = Group Integration – Task; PA = Performance Achievement; PC = Performance Commitment.

Table 4

Chi-Square Difference Tests for Specific Paths as a Function of Evaluative Perception

Pathway	χ^2	df	<i>p</i>
1. IM → PC	57.53	2	<.001
2. IS → ATG-T	31.74	2	<.001
3. AGG → ATG-T	4.65	2	.098
4. AGG → ATG-S	2.78	2	.090
5. AGG → GI-S	7.54	2	.023
6. AGG → GI-T	16.92	2	<.001
7. HPE → GI-S	29.31	2	<.001
8. HPE → GI-T	30.08	2	<.001
9. HPE → PC	82.36	2	<.001
10. ARM → ATG-T	91.08	2	<.001
11. TI → ATG-T	2.29	2	.318
12. TI → GI-T	11.10	2	<.001
13. TI → PA	24.13	2	<.001
14. AB → GI-S	65.70	2	<.001
15. AB → GI-T	96.10	2	<.001
16. SS → ATG-S	63.74	2	<.001
17. PF → ATG-T	15.94	2	<.001

Note. IM = Inspirational Motivation; IS = Intellectual Stimulation; AGG = Fostering Acceptance of Group Goals; HPE = High Performance Expectations; ARM = Appropriate Role Model; TI = Training and Instruction; AB = Autocratic Behaviour; SS = Social Support; PF = Positive Feedback; ATG-T = Individual Attractions to Group – Task; ATG-S = Individual Attractions to Group – Social; GI-S = Group Integration – Social; GI-T = Group Integration – Task; PA = Performance Achievement; PC = Performance Commitment.

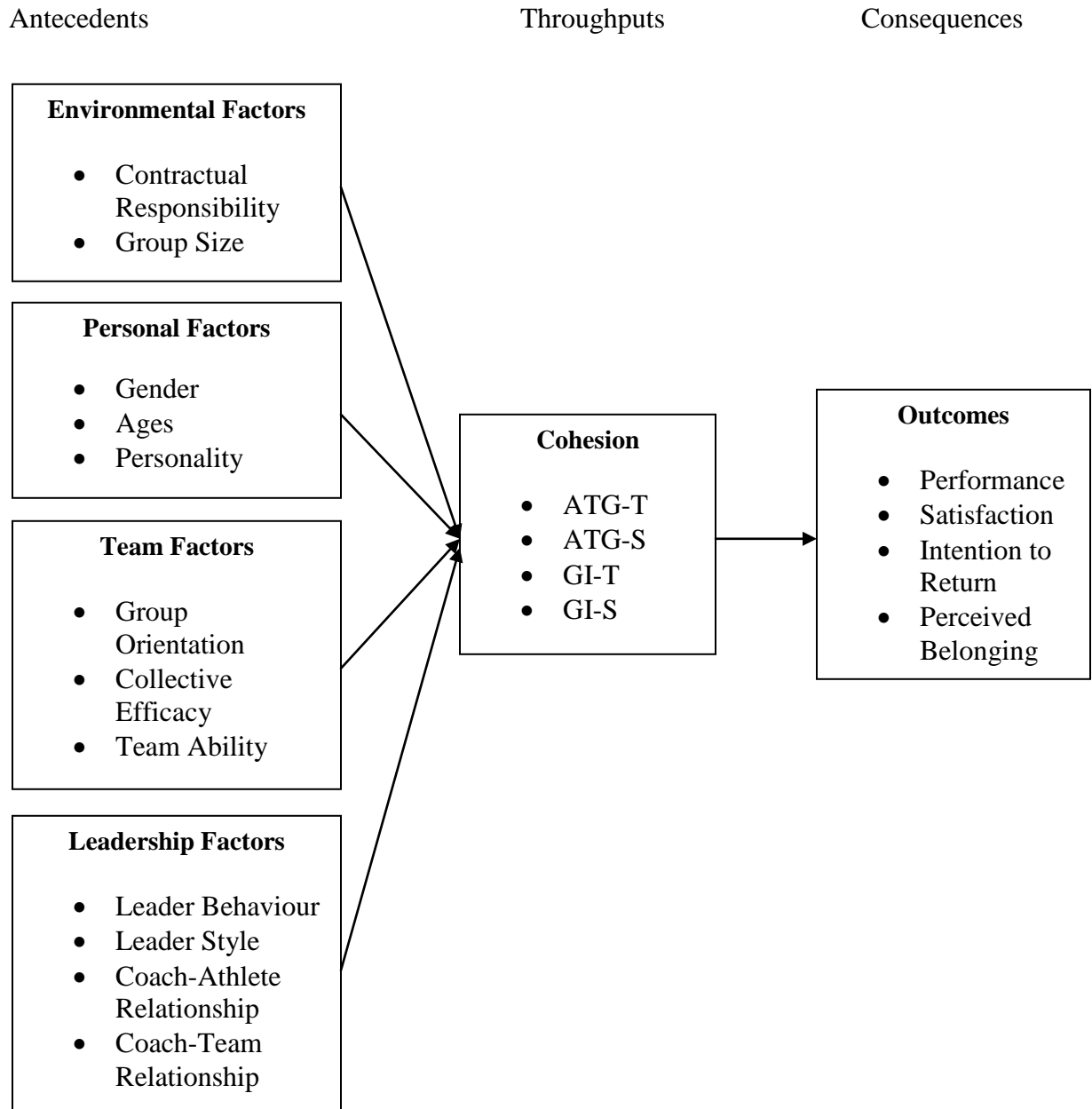


Figure 1. Adapted from “Cohesiveness in sport groups: Implications and considerations”

by A. V. Carron, 1982, *Journal of Sport Psychology*, 4, 123-138.

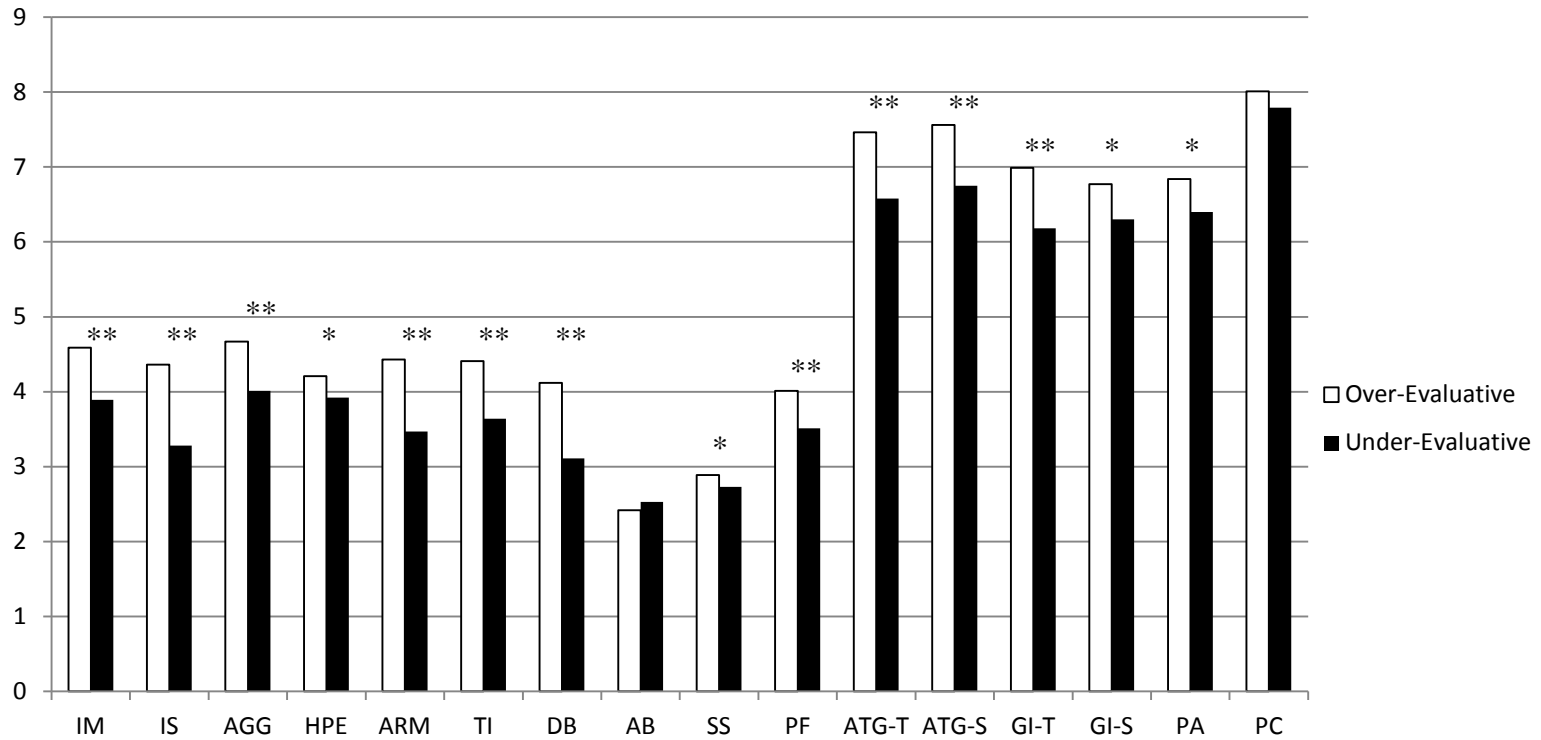


Figure 2. Results of the MANOVA for perceived leadership behaviours, cohesion and performance.

Note. IM = Inspirational Motivation; IS = Intellectual Stimulation; AGG = Fostering Acceptance of Group Goals; HPE = High Performance Expectations; ARM = Appropriate Role Model; TI = Training and Instruction; AB = Autocratic Behaviour; SS = Social Support; PF = Positive Feedback; ATG-T = Individual Attractions to Group – Task; ATG-S = Individual Attractions to Group – Social; GI-S = Group Integration – Social; GI-T = Group Integration – Task; PA = Performance Achievement; PC = Performance Commitment. * $p \leq .05$, ** $p < .001$

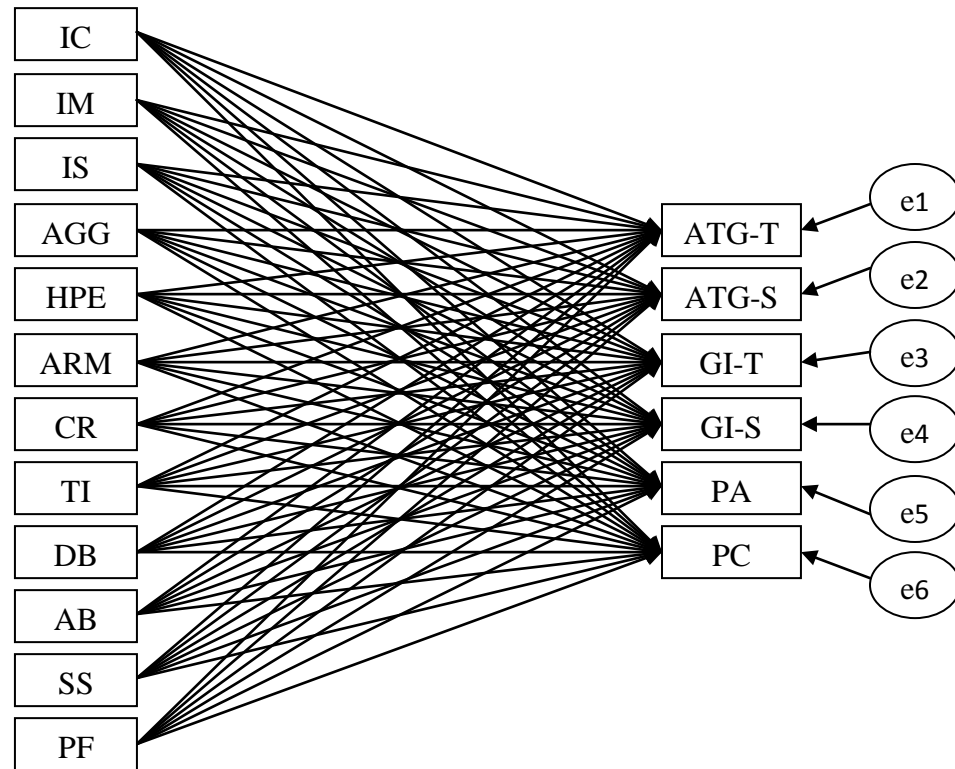


Figure 3. Proposed schematic of the overall path analysis model to be tested across over-

evaluative, under-evaluative perceptions of coaching leadership.

Note. IC = Individual Consideration; IM = Inspirational Motivation; IS = Intellectual Stimulation; AGG = Fostering Acceptance of Group Goals and promoting teamwork; HPE = High Performance Expectations; ARM = Appropriate Role Model; CR = Contingent Reward; TI = Training and Instruction; DB = Democratic Behaviour; AB = Autocratic Behaviour; SS = Social Support; PF = Positive Feedback; ATG-T = Individual Attractions to the Group-Task; ATG-S = Individual Attractions to the Group-Social; GI-T = Group Integration-Task; GI-S = Group Integration-Social; PA = Performance Achievement; PC = Performance Commitment; e1 = error term for ATG-T; e2 = error term for ATG-S; e3 = error term for GI-T; e4 = error term for GI-S; e5 = error term for PA; e6 = error term for PC.

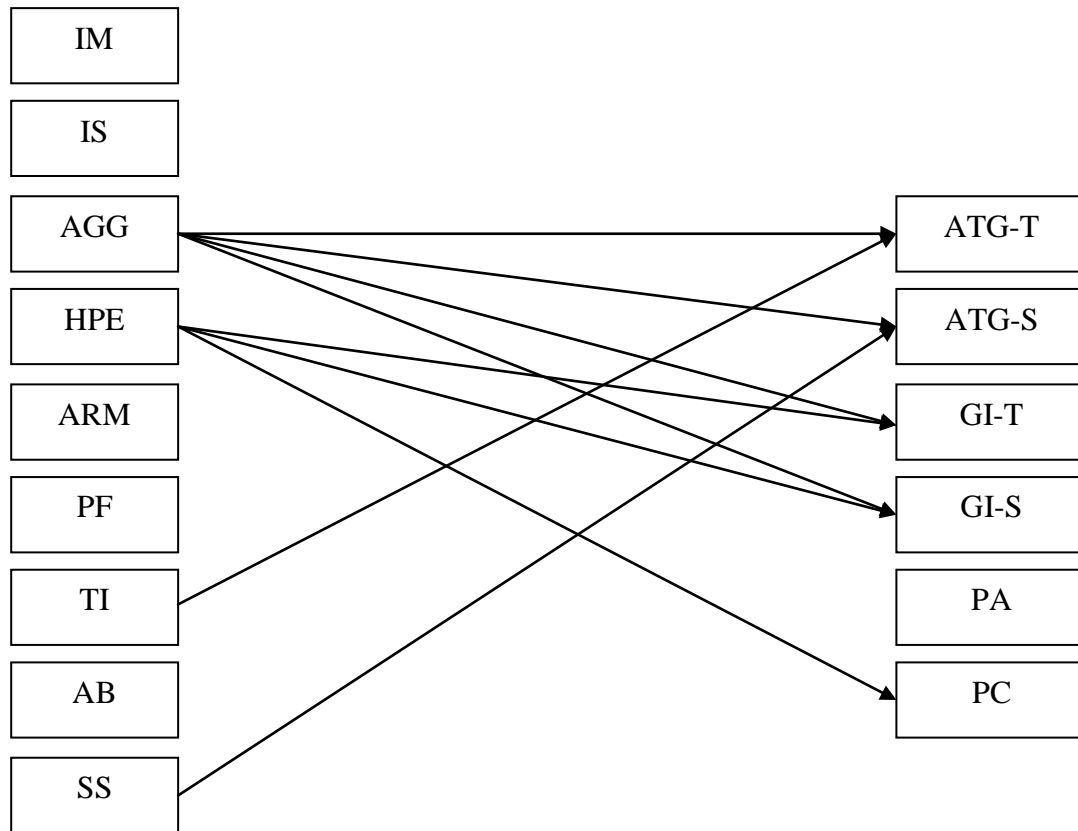


Figure 4. Path diagram of over-evaluative athletes.

Note. Solid lines denote significant pathway. Absence of lines denote non-significant pathway. IM = Inspirational Motivation; IS = Intellectual Stimulation; AGG = Fostering Acceptance of Group Goals and promoting teamwork; HPE = High Performance Expectations; ARM = Appropriate Role Model; TI = Training and Instruction; AB = Autocratic Behaviour; SS = Social Support; PF = Positive Feedback; ATG-T = Individual Attractions to the Group-Task; ATG-S = Individual Attractions to the Group-Social; GI-T = Group Integration-Task; GI-S = Group Integration-Social; PA = Performance Achievement; PC = Performance Commitment.

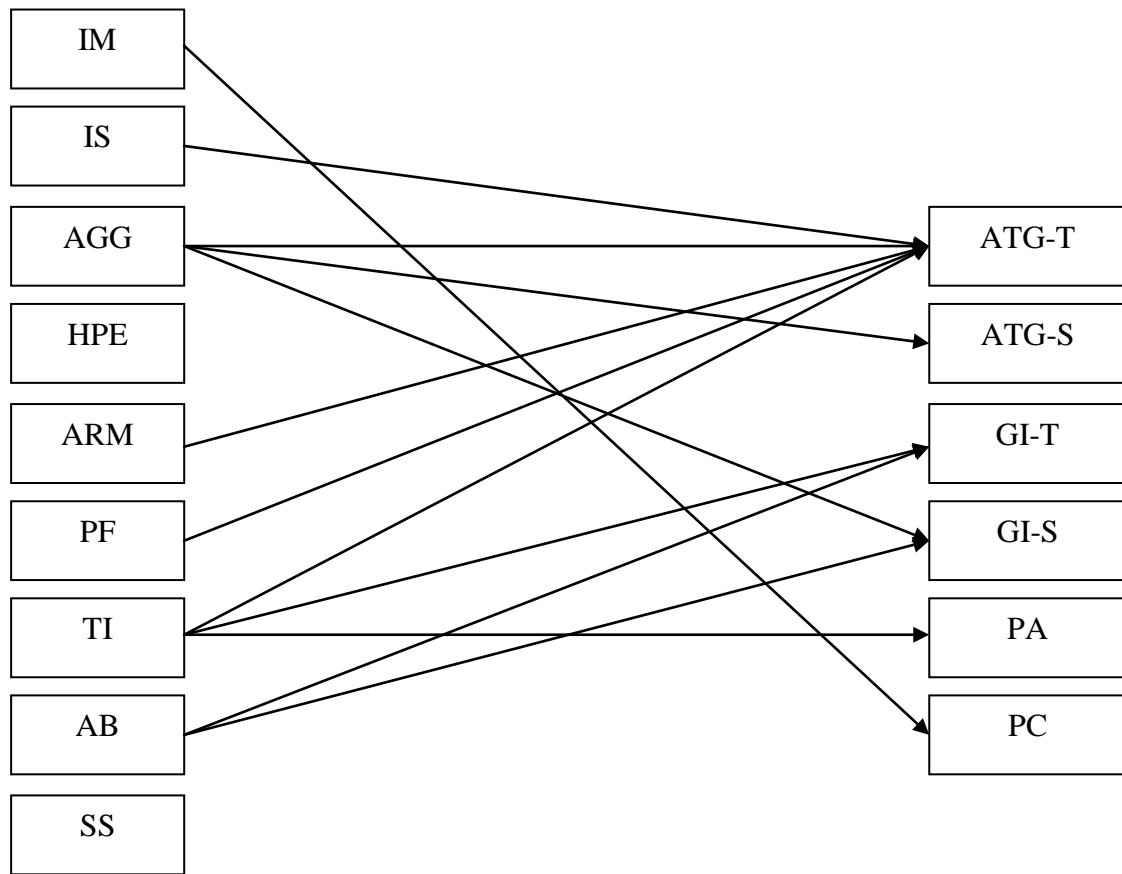


Figure 5. Path diagram of under-evaluative athletes.

Note. Solid lines denote significant pathway. Dashed lines denote non-significant pathway. IM = Inspirational Motivation; IS = Intellectual Stimulation; AGG = Fostering Acceptance of Group Goals and promoting teamwork; HPE = High Performance Expectations; ARM = Appropriate Role Model; TI = Training and Instruction; AB = Autocratic Behaviour; SS = Social Support; PF = Positive Feedback; ATG-T = Individual Attractions to the Group-Task; ATG-S = Individual Attractions to the Group-Social; GI-T = Group Integration-Task; GI-S = Group Integration-Social; PA = Performance Achievement; PC = Performance Commitment.

LITERATURE REVIEW

Introduction

The purpose of the present thesis is to investigate whether congruency between coach and athlete perceptions of the coaches' leadership predicts team cohesion, and as a result enhances team performance. The review of literature will be divided into two parts (a) leadership and (b) cohesion.

Leadership

This section of the thesis reviews literature pertaining to leadership, and more specifically coaching leadership. First, leadership will be defined and its characteristics examined. Second, conceptual frameworks for the study of leadership in sport will be examined. Finally, a review of the relevant literature as it pertains to the conceptual models of the leadership in sport will be examined.

Definition and Characteristics of Leadership

As with most common words in the English language, individuals will have similar, yet slightly different understandings as to the meaning of the word in question. The word *leadership* is no exception. Stogdill (1974) argued that there was no agreed upon definition of this term, yet everyone seemingly possessed specific knowledge as to what leadership meant. Adding to its complexity, it was noted that leadership has been defined and classified in as many as 65 different ways within a 50 year period (Fleishman et al., 1991). In spite of the multitude of definitions and classifications, Northouse (2001) synthesized four common characteristics among these various definitions into a succinct, working definition of leadership. Northouse defined it as, "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 3). The four

key characteristics of leadership identified in this definition are highlighted by the key terms of *process*, *influence*, *group* and *goals*. Process highlights the “who” and “what” components of leadership and accounts for the dynamic nature of leadership. Process also implies that there is an interaction between people; quite simply, the leaders and followers. The importance of this characteristic of leadership is that it expands upon the notion that leadership is not merely a trait or in-born characteristic of an individual but it is something that can be learned and developed, and is available to everyone, not merely formally designated leaders (Loughead, Hardy, & Eys, 2006). The characteristic of influence aligns closely with the first, process, and highlights the “how” of leadership. Without influence, or from a slightly different angle, without the specific behaviour of influence being displayed by the leader, the process of leadership cannot take place. The third characteristic, groups, refers to the “where” component of leadership. Leadership occurs in groups due to its very nature. Without followers there are no leaders, and in order for this phenomenon to occur there must be individuals present who are willing to undergo the process of influence set forth by a leader. In order for this leader-follower interaction to occur, a collection of individuals must be present. The fourth and final characteristic examines the “why” of leadership. Goals refer to the leader’s attention to group objectives and the directing, or influencing, of individuals within a group to mobilize their efforts to achieve these objectives as outlined by the leader. These four characteristics collectively form what is known as leadership.

Conceptual Models for the Study of Leadership

This next section pertaining to leadership will examine several of the predominant leadership models which guide the study of leadership in sport. Within sport several

models pertain to the importance of the coach as a leader as it is a generally held assumption that coaches exert much influence towards their athletes' behaviours and performances (Horn, 2008). This section will examine the Multidimensional Model of Leadership (Chelladurai, 1978, 1990, 2007), and the Full Range Model of Leadership (Avolio, 1999).

Multidimensional Model of Leadership. This model of coaching leadership is the most extensively used model to examine leadership within sport (Carron, Hausenblas, & Eys, 2005). Figure 6 represents Chelladurai's (1978, 1990, 2007) Multidimensional Model of Leadership (MML). This linear model is based on the premise that three antecedents influence three forms of coaching behaviour (required, perceived, preferred) and in turn will influence some type of consequence. Research has shown that the more congruent the three behaviours are, the more likely the consequences will be positive in nature (Andrew, 2009; Chelladurai, 1984).

The first antecedent of the MML represents situational characteristics. According to Chelladurai (1978, 1990, 2007), this antecedent is comprised of such factors as team norms, team goals, and team structure as well as other factors such as government and organizational regulations. The second antecedent, leader characteristics, represents such personal attributes as age, gender, and coaching experience. These attributes are unique to the leader of interest and play an important role in the behaviour they exhibit. Much like the leader characteristics, member characteristics represent the unique attributes of the collective followership—in this case, the athletes. It differs however, in that each individual athlete possesses unique, albeit similar, attributes such as age, gender, and

playing experiences. However, each individual athlete requires varying degrees of coach involvement, and varying behaviours for their well-being and development.

These three antecedents are hypothesized to directly impact the three forms of leadership behaviours. The first form of leader behaviour is one which is required of the leader. Situational characteristics and member characteristics are the two antecedents that determine which leader behaviours are required. The second type of leader behaviour is preferred behaviour. This too is preceded by situational and member characteristics, however, it differs from required behaviour in that it does not need to be executed by the coach, it is merely the desired behaviour as outlined by followers and the organization. The final type of leader behaviour outlined by Chelladurai (1978, 1990, 2007) is the actual or perceived behaviour of the leader. Not only is this form of behaviour impacted directly by the antecedent of leader characteristics but it is also impacted by both the preferred and required behaviours. The coach will formulate contextually appropriate leadership behaviours based upon their individual leader characteristics, but also take into consideration what behaviours are deemed as required and which behaviours are considered to be preferred by the athletes and the situation in which they find themselves. In this way coaches' behaviour is influenced by not only all three antecedents but the other two types of behaviour as well. As stated prior, if these three behaviours are congruent, positive consequences are more likely to occur (Andrew, 2009).

The final component of the MML is the consequences. The two primary consequences outlined by Chelladurai (1978, 1990, 2007) are team performance and member satisfaction. In fact, Chelladurai and Carron (1978) suggested that these two outcomes are critical given that sport is a task-oriented activity and as such better team

performance and member satisfaction are essential. Therefore, it is not surprising that research has found considerable support for the importance of these two consequences (e.g., Chelladurai, 1984; Weiss & Friedrichs, 1986). It should be noted that the MML also contains a feedback loop which builds upon the outcome of satisfaction and performance with feedback provided directly to the actual leader behaviour. This feedback loop follows the logic that as positive benefits, such as member satisfaction and team performance levels, are elevated it will positively reinforce actual leader behaviours as ones that are acceptable and effective; while the opposite can also be true. Should satisfaction and performance be weak it will negatively reinforce actual leader behaviours and thus lead to a change in the promotion of more positive outcomes.

Measurement of the MML. Traditionally, researchers who have used the MML as their theoretical framework have quantified leadership behaviours using the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980).

LSS. The LSS was developed in conjunction with the MML and consists of 40 items measuring five leadership behaviours: Autocratic Behaviour, Democratic Behaviour, Positive Feedback, Social Support, and Training and Instruction. As Chelladurai and Saleh (1980) highlighted, the LSS consists of one subscale related directly to the task (i.e., Training and Instruction), two subscales related to decision making style (i.e., Autocratic and Democratic Behaviour), and two subscales relating to motivation (i.e., Positive Feedback and Social Support).

Autocratic Behaviour refers to the extent to which the leader employs independent decision making. This subscale consists of five items related to Autocratic decision making with a sample item reading “Refuses to compromise a point”.

Democratic Behaviour refers to the extent to which the leader involves others in the decision making process with respect to game play, strategies, and tactics. This subscale of the LSS consists of nine items with a sample item reading “Gets group approval on important matters before going ahead”. The third subscale, Positive Feedback, refers to the extent to which the leader provides positive reinforcement, recognition, and rewarding of good performance. This subscale contains five items with an example item reading “Tells an athlete when he/she does a particularly good job”. The fourth dimension is Social Support and refers to leader behaviours that are characterized by a concern for the welfare of individual athletes, as well as such behaviours related to creating a positive group atmosphere and encouraging close personal relationships. This subscale consists of eight items with a sample item reading “Encourages close and informal relations with athletes”. The final dimension, Training and Instruction, contains 13 items and refers to behaviour aimed at improving performance by emphasizing strenuous training, and instructing individuals in the skills, techniques, and tactics of the sport. A sample item of this subscale reads “Explains to each athlete the techniques and tactics of the sport. All items contained in the LSS are measured on a five point Likert type scale with scores ranging from 1 (*never*) to 5 (*always*) with higher scores indicating stronger perceptions of leader behaviours.

Full range model of leadership. This model of leadership contains three broad classifications of leadership behaviours; non-transactional, transactional, and transformational leadership (Avolio, 1999). This model utilizes three dimensions to plot leadership effectiveness, behaviour frequency, as well as the degree of involvement (i.e., either active or passive) displayed by the leader (see Figure 7). *Non-transactional* is the

most passive and ineffective leadership behaviour. In fact it is often equated with the absence of leadership behaviour rather than merely negative leadership behaviour altogether (Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007). Furthermore, this non-transactional or laissez-faire leadership style is often considered to be a failure to manage or lead (Eagly, Johannesen-Schmidt, & van Engen, 2003).

Transactional leadership behaviour is slightly more effective and active form of leadership than non-transactional (Avolio, 1999). This form of leadership involves some type of exchange between the leader and follower, with the followers receiving rewards contingent upon quality work, effort, and behaviour, while punishments are distributed to correct poor work, effort, and behaviour (Burns, 1978; Callow, Smith, Hardy, Arthur, & Hardy, 2009). Transactional leadership also consists of three varying leadership behaviours all with differing degrees of effectiveness and involvement required from the leader (Avolio, 1999). The two least effective, and more passive, forms of transactional leadership behaviours are termed Management by exception-*passive* and Management by exception-*active*. These two forms are both reactionary rather than proactive in nature; however, the distinction between the two is the passage of time (Bono & Judge, 2004). Management by exception-passive refers to a leader that, unlike a laissez-faire “leader”, will step in and intervene when non-compliance of a follower has occurred. However, there is a distinct lack of energy expended upon intervening quickly. Problems must become chronic before any action is taken (Avolio, 1999). In contrast, those leaders who display Management by exception-active are ones that engage in active vigilance; constantly examining for irregularities and deviations from acceptable behaviour. This form of transactional leadership does not allow for the chronic occurrence of issues or

problems, rather it reminds individuals of necessary corrections immediately so that issues do not persist (Bono & Judge, 2004). The third and final form of transactional leadership is termed Contingent Reward. According to Avolio (1999), this form of transactional leadership is the most effective and active. This leadership behaviour engages in contractual agreements with respect to a specific task with distinct rewards for exceptional completion agreed upon between leader and follower.

The final component of Avolio's (1999) model consists of the four 'I' behaviours of *transformational* leadership. Within the full range model, it is considered the most effective and most active form of leadership and within the literature is considered to be the most beneficial form of leadership with respect to the leader-follower relationship (e.g., Dionne, Yammarino, Atwater, & Spangler, 2004; Ruggieri, 2009). In fact, it is widely considered that in order for effective transformational leadership to occur transactional leadership must be used as a building block (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). The distinction between transformational and transactional leadership is that transformational leadership focuses upon building relationships with followers based on emotional, personal, and inspirational exchanges with the end goal of follower development while transactional relies upon an exchange of rewards for services provided (Callow et al., 2009). It is important to note that transformational leaders are often labeled as charismatic leaders due to the adoption of the four components of transformational leadership (Bass, 1990).

The first 'I' behaviour of Avolio's (1999) model is termed *Idealized influence*, which refers to the pattern of behaviours exhibited by a leader such that they become a role model to followers. This form of transformational leadership often results in

followers' identification with and emulation of the behaviours displayed by the leader.

The second 'I' behaviour of this model is termed *Inspirational Motivation*. This type of leadership involves behaviours such as articulating a vision of the future, and to speak of it optimistically and to energize and rally followers to pursue the presented future with vigor. Leaders who utilize Inspirational Motivation behaviours also stress the importance of establishing ambitious yet achievable goals with hard work and dedication. The third 'I' behaviour is *Intellectual Stimulation* and involves a leader's willingness to allow for creativity and innovation to emerge from followers. This involves such techniques as questioning long held assumptions, re-examining problems with a different lens and suggesting new ways of completing specific tasks. Due to the leader's allowance of personal growth of the followers the followers may in turn stimulate the leader in such a fashion that their long held assumptions are challenged and new ways of completing a task are considered, thus resulting in a reciprocal relationship. The final 'I' behaviour is termed *Individual Consideration*. Much like the name suggests this involves the leader seeing individuals as just that; individuals. They are not a conglomeration of numbers, or solely one unit or team. Consideration for each individual's needs and abilities is given, with personal training and instruction given as well to insure follower development occurs.

Measurement of the full range model of leadership. The full range model of leadership has been measured predominantly with three inventories: the Multifactor Leadership Questionnaire Form 5-X (MLQ 5-X; Bass & Avolio, 1995), the Transformational Leadership Inventory (TLI; Podsakoff et al., 1990) and the Differentiated Transformational Leadership Inventory (DTLI; Hardy et al., 2010).

MLQ-5X. The MLQ 5-X (Bass & Avolio, 1995) consists of nine subscales with a total of 45 items with each subscale containing five items. Five of the subscales tap into transformational leadership behaviours of Idealized attributes, Idealized behaviours, Inspirational Motivation, Intellectual Stimulation, and Individual Consideration. Three subscales measure the transactional leadership behaviours of Contingent Reward, Management by exception – active, and Management by exception – passive. The final subscale is representative of non-leadership behaviour labeled as Laissez-faire.

The MLQ-5X was developed using nine sub-samples with a total sample size of 2,154 individuals from American and Scottish business firms, American and Taiwanese undergraduate students, students at an American nursing school, and employees of an American government research agency (Bass & Avolio, 2000). Using confirmatory factor analysis, it was found that a nine-factor solution provided the best fit with the data with a goodness of fit value exceeding the recommended .90 (Bentler, 1990), and a root mean square error residual below the recommended cut-off of .05 (Joreskog & Sorbom, 1989). Furthermore, the five transformational leader behaviour subscales were found to have high intercorrelations with one another with an average value of .83, as well as a slightly lower average intercorrelation value (.71) with the transactional subscale of Contingent Reward. Management by exception-active had both positive and negative, albeit small, relationships with the prior six subscales ranging from -.03 to .03, and was found to be positively related to the subscales of Management by exception-passive and Laissez-faire.

The subscale of Idealized attributes refers to behaviours through which an individual is given, or attributed, the respect and trust of followers without the leader

necessarily realizing that they are acting in such a fashion. A sample item reads “Acts in ways that builds my respect”. Idealized behaviours, however, refers to the personal interactions between the leader and followers in such a way that respect and trust is gained by the leader. A sample item reads “Talks to us about his/her most important values and beliefs”. The third subscale, Inspirational Motivation, refers to the energizing of followers through leader behaviours that inspire and motivate others around them. This also encompasses providing challenge and meaning to the task(s) at hand. A sample item of this subscale reads “Talks optimistically about the future”. The fourth subscale entitled Intellectual Stimulation refers to the efforts of the leaders in fostering an innovative and creative environment by questioning the long-held assumptions of followers, as well as reframing problems and approaching old situations with a new outlook. A sample item of this subscale reads “Seeks differing perspectives from me when solving problems”. The final transformational leadership subscale is entitled Individual Consideration refers to the perception of a team as not merely a conglomeration of individuals but a group of unique people with unique characteristics, needs and desires. A sample item reads “Treats me as an individual rather than just a member of a group”.

The first transactional subscale of the MLQ-5X is entitled Contingent Reward. This subscale is viewed as the exchanging of rewards in return for services. If the task is completed successfully, the leader will provide some form of reward. A sample item from this subscale reads “Expresses his/her satisfaction when I do a good job”. The next two subscales are entitled Management by exception-active and Management by exception-passive. Both of these subscales refer to the intervention of a leader after mistakes have occurred and the reinforcement of standards. However, the distinction is

the passage of time between the violation of the standard and intervention. Those using the active form will allow no time to pass, while those subscribing to the passive form will allow greater amounts of time to pass before intervening. A sample item from the active subscale reads “Keeps track of my mistakes”, while a sample item from the passive subscale reads “Fails to intervene until problems become serious”. The final subscale, entitled Laissez-faire represents the absence of leadership. A sample item reads “Is absent when needed”. All items are measured on a 5 point Likert scale with scores ranging from 0 (*not at all*) to 4 (*frequently, if not always*). Therefore, higher scores are indicative of a greater frequency of use of the behaviour in question.

TLI. The TLI (Podsakoff et al., 1990) is an inventory that examines primarily transformational leadership. This inventory contains six transformational leadership dimensions: Articulating a Vision, Providing an Appropriate Role Model, Fostering Acceptance of Group Goals, High Performance Expectations, Individualized Support, and Intellectual Stimulation. This inventory also contains one transactional leadership subscale entitled Contingent Reward. The inventory therefore consists of seven subscales with a total of 28 items and is measured on a seven point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). As some of the constructs within the TLI are similar in nature to that of the MLQ-5X only those which are different will be discussed further. Therefore, Individualized Support, Intellectual Stimulation and Contingent Reward will not be discussed further.

Articulating a Vision refers to those behaviours on the part of the leader which identify new opportunities for their team, as well as developing and inspiring others with his/her vision of the future. A sample item of this subscale of five items reads “Has a

clear understanding of where we are going”. Providing an Appropriate Role Model, the second subscale, refers to behaviours by the leader that sets an example for employees to follow. It is also important to understand that these behaviours are consistent with the values and beliefs of the leader. An example item from this three item subscale reads “Leads by example”. The third different subscale, Fostering Acceptance of Group Goals, refers to those behaviours a leader engages in with the purpose of promoting cooperation amongst team members and working together to complete a common goal. This subscale consists of four items with a sample item reading “Gets the group to work together for the same goal”. High Performance Expectations is the final different subscale which contains three items and refers to a leader’s behaviour that demonstrates the expectation of excellence and quality performance on the part of the team members. An item from the TLI providing an example of this behaviour reads “Insists on only the best performance”.

During the development of the TLI, Podsakoff et al., (1990) found that within the first order analysis three of the transformational leadership behaviours were found to have exceedingly high correlations (r approaching or exceeding .90). Therefore it was determined that these three behaviours (i.e., Articulating a Vision, Providing an appropriate model and Fostering Acceptance of Group Goals) were indicators of a second-order construct that was termed “core transformational behaviours”. Using these three “core transformational behaviours”, it was found to have a good fit with the data ($\chi^2 = 877.07$; $df = 337$) with a Tucker-Lewis goodness-of-fit value of .97 which exceeds the acceptable value of .90 (Tucker-Lewis, 1973). It should be noted that the researchers suggested that the high correlation may be due to the fact that these three subscales reference outcomes of the leader’s behaviour and may require followers to draw

inferences and conclusions about a leader's thoughts and behaviours rather than from their own interaction with the leader. Furthermore, the inventory subscales possessed adequate internal consistencies ($.72 < \alpha < .92$).

DTLI. The DTLI (Hardy et al., 2010) is a 26 item inventory measuring seven dimension of leadership. This inventory combines subscales and items from the MLQ-5X as well as the TLI. Specifically, four subscales were taken from the MLQ-5X (Inspirational Motivation, Individual Consideration, Intellectual Stimulation, and Contingent Reward) while the remaining three subscales were taken from the TLI (Appropriate Role Model, Fostering Acceptance of Group Goals, and High Performance Expectations). The inventory is measured on a 5-point Likert scale with the anchors of 1 (*not at all*) and 5 (*all of the time*). Therefore, higher scores indicate a higher perception of the behaviour in question. This inventory also displays adequate fit with the data ($\chi^2 = 615.31$; $df = 278$), however, internal consistencies were low ($\alpha < .70$) for the four subscales of Intellectual Stimulation, Appropriate Role Model, High Performance Expectations and Inspirational Motivation. In light of this finding, the researchers examined this model with a one factor structure. This model displayed adequate fit ($\chi^2 = 866.49$; $df = 209$) and the internal consistency of the one subscale was substantial ($\alpha = .89$).

Research Examining the Leadership Models

Research examining the multidimensional model of leadership. The MML has been used as the theoretical framework for many studies examining sport leadership. The leadership behaviours as outlined in the LSS have been found to be related to many specific outcomes such as performance (e.g., Weiss & Friedrichs, 1986), cohesion (e.g.,

Shields, Gardner, Bredemeier, & Bostro, 1997), and team satisfaction (e.g., Chelladurai, 1984). The findings of the leadership cohesion-relationship will be discussed in-depth later within the literature review, but of particular relevance to the present research is the discussion of the leadership-performance relationship.

Surprisingly, the results examining the leadership-performance relationship have been equivocal (Alfermann, Lee, & Würth, 2005). For example, the leadership behaviours of Democratic Behaviour and Social Support when displayed by a coach have shown a negative relationship with team performance amongst a sample of collegiate basketball players (Weiss & Friedrichs, 1986). While amongst this same sample the behaviours of Autocratic Behaviour, Positive Feedback and Training and Instruction were found to have positive relationships with team performance (Weiss & Friedrichs, 1986). Further examination of this relationship by Garland and Barry (1990) examined these leader behaviours in collegiate football players. Similar to Weiss and Friedrichs (1986), Positive Feedback and Training and Instruction were found to have positive relationships with team performance. In contrast to Weiss and Friedrichs, Democratic Behaviour and Social Support were found to have a positive relationship with performance while Autocratic Behaviour was found to have a negative relationship with team performance (Garland & Barry, 1990).

There are many reasons for the above mentioned equivocal findings. The first is the examination of different sporting contexts such as football (Garland & Barry, 1990), basketball (Weiss & Friedrichs, 1986), and wrestling (Turman, 2001). These sport contexts may require different leadership behaviours due to the unique demands of each individual sport. A second reason is the examination of athletes of different ages and

sport development (e.g., varsity; Weiss & Friedrichs) and high school levels (Turman, 2001). A third reason for the equivocal findings is the measurement of performance. Some research has used the outcome of a win/loss percentage; other research has used point differentials while still other research has used score ratios to measure performance (Alfermann et al., 2005).

Research examining a full range model of leadership. Research utilizing the full range model of leadership is predominant in domains such as organizational dynamics and organizational leadership but has only recently been examined in sport (Yukl, 2002). In fact, Yukl (1999) stated that sport research has substantial gaps to fill before it may use the term full range model of leadership within their domain. Presently, the limited research within sport has focused upon the transformational component with results often disregarding the other leadership behaviours contained within the full range model of leadership.

In a review of transformational leadership in sport, Gomes, Sousa, and Cruz (2006) identified a general lack of research using this theoretical approach. The limited amount of research conducted has typically focused on two outcome variables: athletic performance and perceived leader effectiveness. Charbonneau, Barling, and Kelloway (2001) were one of the first to examine transformational leadership within the context of sport. They examined 168 male and female varsity athletes from a variety of individual (e.g., judo and swimming) and interdependent (e.g., volleyball and basketball) sport teams and how these athletes perceived their coaches' transformational leadership behaviours. This research tested the hypothesis that the effects of transformational leadership upon individual athletic performance were mediated by intrinsic motivation

levels of the athletes. The researchers used the MLQ-5X to measure transformational leadership, the Sport Motivation Scale (SMS; Pelletier, Fortier, Vallerand, Tuson, & Brière, 1995) to measure intrinsic motivation and two final questions posed to the coach at the end of the season to measure individual athletic performance. The results showed that transformational leadership behaviours of Intellectual Stimulation and Individual Consideration from the coach were related to performance but were mediated by the intrinsic motivation levels of the athletes. Therefore, it would appear that transformational leadership behaviours from the coach are effective in enhancing performance; however, athletes must simultaneously be motivated, or willing, to improve as well.

To date, two research studies within sport have examined transformational leadership and perceived leader effectiveness. The first of these examined the effects of transformational leadership behaviours of adolescent athletes from a variety of sport teams such as basketball, volleyball, rugby, badminton, and track and field (Zacharatos, Barling, & Kelloway, 2001). It was hypothesized that adolescents who perceive their parents as displaying transformational leadership behaviours would in turn use those behaviours on their sport teams. Athletes ($N = 112$) were asked to rate their parents, teammates, and own transformational leadership, as well as rate the perceived effectiveness and satisfaction of their teammates. The results showed that the transformational leadership behaviours displayed by adolescent athletes was predicted by perceptions of the father's transformational leadership behaviour ($\beta = .43, p < .01$). Furthermore, both coaches' ($\beta = .43, p < .01$) and peers' ($\beta = .46, p < .01$) perceptions of leader effectiveness were significantly related to transformational leader behaviours

exhibited by the adolescent athletes. One limitation of this study, however, was the use of a global transformational leader behaviour index and not the entire full range of leadership behaviours.

The second study to examine leader effectiveness was conducted using judo athletes (Rowold, 2006). Both male and female judo practitioners ($N = 186$) from 20 clubs, ranging in experience from 1-10 years and an average age of 32 years were asked to rate the leadership behaviours of their instructors using the MLQ-5X. These instructors varied in rank from first to fifth black belt and were predominantly male (80%). Further, the participants were asked to rate their instructor's perceived leadership effectiveness, satisfaction with the instructor, extra effort exerted by the athletes, and frequency of training per month. Using hierarchical regression it was found that transactional and laissez-faire leadership styles accounted for a significant increase in the amount of variance explained amongst three of the four dependent variables as follows: perceived leadership effectiveness ($\Delta R^2 = .28, p < .01$), extra effort ($\Delta R^2 = .28, p < .01$), and satisfaction with the instructor ($\Delta R^2 = .33, p < .01$). In the next stage of the regression model transformational leadership behaviours accounted for a significant increase in the explained variance of the same three outcome variable: perceived leadership effectiveness ($\Delta R^2 = .13, p < .01$), extra effort exerted ($\Delta R^2 = .29, p < .01$) and satisfaction with the instructor ($\Delta R^2 = .21, p < .01$). Furthermore, both transactional and transformational leadership behaviours explained 47% to 60% of the variance in these three dependent variables. Given these results, it is quite surprising that the full range model of leadership has not been extensively examined within sport rather it has focused on only the transformational component.

Cohesion

To begin, the construct of cohesion will be defined and its characteristics examined. Following this, a conceptual model for the understanding of cohesion will be forwarded and the measurement tool utilized to examine perceptions of cohesion will be discussed. Furthermore, the framework for studying cohesion within the realm of sport will be highlighted. Finally a review of the literature regarding the leadership-cohesion, and cohesion-performance relationships will be forwarded.

Definition and Characteristics of Cohesion

Cohesion has often been identified as the most important small-group variable (Golembiewski, 1962; Lott & Lott, 1965). As such cohesion has undergone extensive study resulting in a gradual focus to how it is characterized and defined. Cohesion is considered to be an easily describable, and intuitively understood group characteristic, yet it has required several decades of study in order to render a widely accepted definition (Mudrack, 1989). In its infancy Moreno and Jennings (1937) forwarded a definition of cohesiveness as, “the forces holding the individuals within the groupings in which they are” (p. 371). Over a decade later cohesion was defined in a similar manner as, “the total field of forces which act on members to remain in the group” (Festinger, Schachter, & Back, 1950, p. 164). Festinger (1950) quickly modified the above definition due to the abstract nature of “the total forces”. The reinterpretation read such that cohesion was now defined as, “the *resultant* of all the forces acting on the members to remain in the group,” (Festinger, 1950, p. 274). While not necessarily clearing the conceptual waters, the modified Festinger definition proposed that cohesion was, at minimum, bi-dimensional in nature. That is, cohesion consisted of (a) attractiveness of the group, which referred to the

degree to which the group provided a positive environment, and (b) means control forces referring to the degree to which the group serves as a means to an end goal or objective for its membership (Carron, 1982).

These previous definitions, however, provided no clarity as to understanding the meaning of resultant forces, or forces in general. In light of this, an opposing definition of cohesion was forwarded by Gross and Martin (1952) who defined cohesion as, “the resistance of a group to disruptive forces” (p. 553). Contrasting the Gross and Martin definition with Festinger (Festinger, 1950; Festinger et al., 1950), there is a polarity on the definition and conceptualization of cohesion. No longer was cohesion considered solely an attraction to the group but also as a compulsion to remain within the group and avoid group fragmentation. However, all of these definitions suffered from two issues: (a) seeing cohesion as a unidimensional construct, and (b) not attempting to understand the *why* of cohesion.

Expanding upon these early attempts to define cohesion, Carron (1982) attempted to account for the multidimensional nature of cohesion, as well as incorporating an answer as to why individuals remain within a group. It was believed that coming together was indeed required for cohesion but this did not account for the persistence, or purpose, of remaining together as a functioning unit. Therefore, Carron forwarded a definition of cohesion that read, “cohesion can be defined as a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives,” (p. 124). This definition taps into the purpose component of cohesion stating that individuals remain within the group in order to achieve goals and objectives, all the while maintaining that cohesion is multidimensional in nature; that is it persists for

varying reasons. This definition however placed an importance on the task aspects of cohesion while seemingly ignoring personal and emotional reasons for joining and remaining within a group. Therefore an expanded definition of cohesion was forwarded to reflect this affective component. Consequently this revised definition is viewed as the most widely accepted definition of cohesion and is viewed as, “a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron, Brawley, & Widmeyer, 1998, p. 213).

According to Carron et al. (1998), the above definition highlights four distinct characteristics of cohesion. The first being cohesion’s *multidimensional* nature. This is characterized by individuals joining and remaining within a group for a variety of reasons. The second characteristic is the *dynamic* nature of cohesion. Cohesion levels are constantly fluctuating, and groups can experience high and low levels of cohesion while maintaining the same components (i.e., members) and the same objectives (i.e., goals). The third characteristic of cohesion is that groups are created for an *instrumental purpose*; that is to say they are formed for a reason, which is most often to achieve some task-related goal. Finally, there is an *affective* component to cohesion. By engaging, and staying, within the group, members achieve some level of emotional satisfaction.

Conceptual Model and Measurement of Cohesion

Carron, Widmeyer, and Brawley (1985) forwarded a model of cohesion which sheds light upon the multidimensionality of cohesion (see Figure 8). At the first level of this model is the general concept of cohesion (Carron et al, 1985; Dion, 2000). The first compartmentalization of cohesion arises from the subdivision of cohesion into an

individual component labeled as *Individual Attractions to Group* (ATG), and a group component labeled *Group Integration* (GI). This dichotomy arose from the finding by Van Bergen and Koekebakker (1959) that although cohesion had been primarily defined as an attractiveness of a group to an individual, cohesion itself is a phenomenon which occurs in groups, therefore there must be some element of group identity, or a group factor, in its conceptualization (Dion, 2000). This dichotomy can best be understood by defining ATG as the individual members' personal feelings about their role and involvement with other group members, while GI refers to the degree of closeness, similarity and unification of the group as a whole (Carron et al., 1985; Dion, 2000). Simply, ATG reflects individual members' feelings toward the group, while GI reflects the group feelings as a totality.

The second delineation occurs as the concepts of ATG and GI are further subdivided into *task* and *social* components (Carron et al., 1985). The task component refers to the group orientation towards goal attainment, while the social component refers to the affective relationships between group members. This resulted in four dimensions of cohesion defined as: Individual Attractions to the Group – Task (*ATG-T*), Individual Attractions to the Group – Social (*ATG-S*), Group Integration – Task (*GI-T*), and finally Group Integration – Social (*GI-S*). It was from these four conceptually unique components of cohesion that Carron et al. (1985) developed a measurement tool of cohesion in sport teams known as the *Group Environment Questionnaire* (GEQ).

GEQ. The GEQ (Carron et al., 1985) was developed using the Carron et al.'s (1985) conceptualization of cohesion. The GEQ is an 18-item inventory that measures the four dimensions of cohesion. The first subscale measures the ATG-T component of

cohesion (i.e., individuals' personal feelings towards involvement of goal achievement) and contains four items with a sample item reading, "This team does not give me enough opportunities to improve my personal performance". The second subscale measures the ATG-S component of cohesion (i.e., individuals' personal feelings towards involvement in social aspects of the team), and contains five items with a sample item reading, "For me, this team is one of the most important social groups to which I belong". The third subscale taps into GI-T (i.e., similarity in group members' orientation towards group objectives and their completion). This dimension consists of five items and a sample item is, "Our team is united in trying to reach its goals for performance". The final subscale is GI-S (i.e., similarity in group members' orientation towards attending, and being a part of, social/extra-curricular team events and bonding with teammates). It contains four items and a sample item reads, "Members of our team would rather go out on their own than get together as a team". All of the items of the GEQ are measured on a 9-point Likert scale anchored at the extremes by 1 (strongly disagree) and 9 (strongly agree). It is important to note that 12 of the 18 original items are negatively worded and therefore must be reverse coded, meaning that higher scores are indicative of higher team cohesion levels (Carron et al., 1985).

In order to ensure that the GEQ measures cohesion validly and reliably it is necessary to examine the psychometric properties of the inventory. More specifically properties such as internal consistency, as well as content, concurrent, predictive, and factorial validity of the inventory have been assessed. Internal consistency of the GEQ has consistently been shown to be within acceptable limits. For example in its development the subscales were shown to have the following Cronbach's alpha values:

ATG-T, $\alpha = .75$; ATG-S, $\alpha = .64$; GI-T, $\alpha = .70$; and GI-S, $\alpha = .76$ (Carron et al., 1985). More recently these subscales have been shown to have similar Cronbach alpha values, and as such acceptable internal consistency. These values are as follows: ATG-T, $\alpha = .80$; ATG-S, $\alpha = .76$; GI-T, $\alpha = .72$; and finally GI-S, $\alpha = .71$ (Senécal, Loughead, & Bloom, 2008). Additionally, within the development stages of the GEQ, it was analyzed for content validity (Carron et al., 1985). Content validity analysis was completed to assure the developers, and later users, that the items within the GEQ do indeed measure the construct of cohesion and not a different group variable. The following steps were undertaken by Carron et al. (1985) to ensure content validity: (a) a broad literature search of relevant cohesion literature, (b) the use of external participants as active persons in the conceptual definition process, (c) the usage of a conceptual model to provide structure for item and scale development, (d) assessment of the items made by five independent experts, and (e) examination of the intercorrelations of each item.

Another type of validity is concurrent validity. This refers to the moderate correlation (i.e., $r = .35$ to $.60$) of an instrument (e.g., GEQ) with instruments that measure similar phenomena. This validation of the GEQ done by Brawley, Carron, and Widmeyer (1987) examined the relationship between the GEQ and two other similar instruments: the Sport Cohesiveness Questionnaire (SCQ: Martens, Landers, & Loy, 1972) and the Team Climate Questionnaire (TCQ: Carron, 1986; Grand & Carron, 1982). It was found that all four subscales of the GEQ correlated within the acceptable range with the SCQ. Furthermore, both task dimensions of cohesion (ATG-T and GI-T) correlated well with the TCQ. These results provided evidence for the concurrent validity of the GEQ.

Predictive validity of an instrument refers to the ability of the instrument to forecast a specific outcome that is theoretically linked to the concept the instrument measures. In fact, there are numerous studies that have demonstrated the predictive validity of the GEQ. For example Terry et al. (2000) examined whether cohesion influenced mood in club rugby, rowing, and netball athletes. The results indicated that high levels task cohesion (i.e., ATG-T and GI-T) predicted low levels of tension, anger, and depression. The results also indicated that social cohesion had an impact on mood states. That is, high levels of ATG-S predicted low tension and depression, along with high levels of vigor. It is also important to note that sport type did not moderate the cohesion-mood relationship which provides evidence for the general predictive ability of cohesion with respect to mood. Studies pertaining to the predictive ability of cohesion with respect to adherence to a physical activity program (Carron, Widmeyer, & Brawley, 1988), as well as with performance, such that higher levels of cohesion predicted higher levels of performance (Carron, Colman, Wheeler, & Stevens, 2002) have also shown the predictive ability of the GEQ.

Lastly, factorial validity was examined by Carron et al. (1985) using principle factoring with oblique rotation. The analysis was done using a four factor model consistent with that of the proposed conceptual model of cohesion (i.e., ATG-T, ATG-S, GI-T, and GI-S). Results of the analysis revealed the relevance of using a four factor structure within the questionnaire, consistent with the conceptual model due to acceptable factor loading criterion as well as acceptable factor eigenvalues. Furthermore, researchers have found similar factorial validity of the GEQ with intercollegiate athletes from a variety of interdependent sport teams (Li & Harmer, 1996). Additionally, factorial

validity has been examined within longitudinal research and found to be consistent over time when examining cohesion levels within an elite female sport team providing further evidence for factorial validity of the GEQ (Leeson & Fletcher, 2005).

Framework for the Study of Cohesion

Cohesion research has been guided by the linear conceptual model advanced by Carron (1982) which consists of antecedents, throughputs, and outputs (see Figure 1). This model contains four antecedents which have all been shown to contribute to cohesiveness in sport teams. They are as follows: (a) environmental factors, (b) personal factors, (c) leadership factors, and (d) team factors. Environmental factors consist of two distinct components; contractual responsibility and organizational orientation. The former refers to the obligations of the individual towards the team/organization, while that latter refers to the vision and objectives of the team of which the individual is a part. The second antecedent, personal factors, refers to individual differences between team members. For example, one team member may join a team for primarily task purposes while another may join for solely social. Due to these individual differences team member satisfaction and as a result group cohesion will be impacted. Leadership factors is the third antecedent of cohesion. This antecedent consists of such factors as leadership behaviours and styles employed by the coach or athlete leaders, as well as leader-follower relationships. The final antecedent is labeled team factors and includes the group's orientation, team norms, team stability, and the desire for team success.

These four antecedents are hypothesized to influence the throughput of cohesion. The strength and form which cohesion takes shape due to the four antecedents will determine the consequences. Broadly, these have been defined by Carron et al. (1982) as

potentially being group or individual outcomes. Group outcomes refer to such consequences as team stability, as well as absolute measures of team performance (e.g., win-loss ratio) and relative measures of team performance (e.g., keeping a game close against a vastly superior opponent). With respect to individual outcomes, this consequence consists of such outcomes as individual satisfaction, and much like group outcomes they may be measured with absolute and relative performance scales.

Research Examining Cohesion

This next section of the literature review will focus on examining the research pertinent to this study. Research shall be examined that expands upon specific antecedents and consequences within the framework developed by Carron et al. (1982). Specifically, research examining the antecedent of leadership and the outcome of performance in regard to cohesion will be reviewed.

Leadership-cohesion relationship. Research examining the leadership-cohesion relationship has often been conducted with respect to the coach occupying the leadership role (e.g., Widmeyer & Williams, 1991) while a recent expansion of leadership has taken place with respect to the athlete filling this leadership role as well (e.g., Loughhead & Hardy, 2005). For the purposes of this study, leadership will be examined in reference to the coaching leadership paradigm. According to Bird (1977) this avenue of research is of great importance as coaches (i.e., a formal team leader) within competitive sport can exert great influence over such group factors as cohesion and ultimately performance. Furthermore, due to the expansive nature of this topic, the relationship has been studied using several leadership inventories, while cohesion has been almost exclusively

examined using the GEQ. Regardless of the operationalization of either leadership or cohesion, all have pointed to a similar conclusion—leadership affects cohesion.

The most common way in which the leadership-cohesion relationship has been examined is through the use of quantitative methodologies. In particular, the most frequent inventory pertaining to leadership in sport has been to use the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980), which measures five dimensions of leadership. They are Training and Instruction, Democratic Behaviour, Autocratic Behaviour, Social Support, and Positive Feedback. Typically, research has used this inventory along with the GEQ (Carron et al., 1985) to measure levels of team cohesion. Early research in this vein conducted by Westre and Weiss (1991) examined the relationship between perceived coaching behaviours as measured by the LSS (Chelladurai & Saleh, 1980) and levels of team cohesion using the GEQ (Carron et al., 1985) from six high school varsity football teams, representing 182 athletes. The results showed that coaching leader behaviours were related to perceptions of team cohesion. Specifically, the behaviours of Training and Instruction, Democratic Behaviour, Social Support, and Positive Feedback were associated with higher levels of task cohesion; both Individual Attractions to the Group-Task and Group Integration-Task. That is, it was found that Social Support provided the largest contribution to this relationship, followed by Training and Instruction, Positive Feedback and finally Democratic Behaviour. Taken from an athlete's perspective, these findings revealed that if a coach frequently uses these coaching behaviours, the athletes will experience a high level of task cohesion. Similar patterns of results have emerged with other studies. For example, Shields et al. (1997) have found that all five LSS leadership behaviours were related to both task and social

cohesion when examining collegiate level baseball and softball players ($N = 307$). In fact, Training and Instruction provided the largest positive relationship with both types of cohesion, followed by Social Support, Democratic Behaviour, and Positive Feedback. In contrast, Autocratic Behaviour was found to have a negative relationship with both task and social cohesion.

More recent research by Jowett and Chaundy (2004) examined the relationship between leadership and cohesion. Participants were 111 university student-athletes participating in a wide variety of interdependent sports such as rugby, soccer, field hockey, and basketball. Similar to Shields et al. (1997) and Westre and Weiss (1991) results showed that the leadership behaviours of Training and Instruction, Democratic Behaviour, Social Support, and Positive Feedback were positively correlated with both social and task cohesion. Furthermore, as a predictor these leadership behaviours account for a significant amount of variance with respect to task cohesion ($R^2 = .26$, $F_{(4, 106)} = 10.74$, $p < .001$) and social cohesion ($R^2 = .12$, $F_{(4, 106)} = 4.65$, $p = .002$). Intuitively the findings of these research studies were not necessarily surprising but provided empirical evidence of a relationship between coach leadership behaviours and team cohesion.

Moving away from the LSS and its five leadership behaviours, recent research examining the leadership-cohesion relationship has operationalized leadership using transformational leadership behaviours. To date, only one sport specific study has examined transformational leader behaviours and its relationship with team cohesion. Callow et al. (2009) measured leadership using a slightly modified, sport specific, version of the DTLI (Hardy et al., 2010) while cohesion was measured using the GEQ (Carron et al., 1985) whereby the four dimensions of cohesion were collapsed into two global

dimensions of social and task cohesion. The participants were 309 ultimate Frisbee players ($n = 204$ were males and $n = 105$ females). All players competed at the university or club level in the United Kingdom. The results showed that the leadership behaviours of Fostering Acceptance of Group Goals, High Performance Expectations, and individualized consideration predicted a significant proportion of the variance with respect to task cohesion ($R^2 = .34$, $F_{4, 300} = 38.01$, $p < .01$) with Fostering Acceptance of Group Goals contributing the most ($\beta = .37$, $p < .001$). With respect to social cohesion, the findings indicated that Fostering Acceptance of Group Goals and Intellectual Stimulation predicted a significant portion of the variance ($R^2 = .07$, $F_{2, 304} = 12.76$, $p < .001$). However, upon examination of the beta coefficients it was found that Fostering Acceptance of Group Goals ($\beta = .23$, $p < .001$) provided the only significant contribution to the explained variance. Of importance to note, Callow et al., (2009) stated that while the leaders who were examined within the context of ultimate Frisbee are athlete leaders, these leaders often fulfill a dual role; that of not only the formal athlete leader but that of the coach as well.

Using a qualitative approach, Turman (2001) examined this relationship by interviewing 12 NCAA Division I football players on their perceptions of which coaching behaviours enhanced or diminished perceptions of team cohesion. As it pertains to those behaviours which enhanced perceptions of team cohesion seven coaching behaviours were identified. The first behaviour identified was bragging, which refers to when a coach builds up and talks up the team's ability to members of the team. The second behaviour, sarcasm and teasing, was perceived to enhance cohesion due to the fostering of closer relationships with the athletes. It allowed for the athletes to view the coach as

someone not set apart, but an individual who can identify and relate to them.

Motivational speeches were the third coaching behaviour that was found to foster cohesion. The fourth behaviour, quality of opponent, may seem counterintuitive but was viewed by athletes as a cohesion developing behaviour. If the coach stresses the ability of the upcoming opponent as one of high quality it was felt by athletes that there was cause to rally together and a communal goal of victory over an opponent of high caliber was set, thus leading to greater perceptions of cohesion. The next coaching behaviour related to a coach's willingness to step back and allow the athletes to develop cohesion on their own. The sixth behaviour was team prayer in reference to the game being played fairly, and to the best ability of everyone's ability. The final behaviour found to promote team cohesion was the coach's dedication. If the coach was viewed as a dedicated and passionate leader, then the athletes felt more dedicated and cohesive to the task.

In contrast, two coaching behaviours were found to diminish perceptions of team cohesion. The first was inequity in player treatment. If players felt there was a disparity in treatment of players then team cohesion suffered because it fostered an environment for jealousy and the formation of cliques. The second behaviour that was found to hinder cohesion was feeling embarrassed and ridiculed. This coaching behaviour differed from sarcasm and teasing concerning the intent with which the message was delivered. With sarcasm and teasing, the words were perceived as playful with the intention of making a joke that is laughed at and forgotten quickly. Embarrassment and ridicule, however, is when, players felt they were singled out and yelled at for making a mistake which they knew was sub-standard without the coach's reinforcement.

Overall research in this area has provided evidence for the relationship between leadership and cohesion. It is imperative to understand that there are several ways in which research can, and has, identified this linkage. Several quantitative studies have displayed this positive relationship, while qualitative research has shown similar results.

Cohesion-performance relationship. The significance of examining cohesion within sport is readily endorsed when one realizes the impact of cohesion upon sporting performance (Jowett & Chaundy, 2004). Early research of this relationship resulted in equivocal findings (Carron, Bray, & Eys, 2002). Furthermore, Gill (1986) stated that, “we can answer the question ‘Do cohesive teams win more games?’ with ‘Yes,’ ‘No,’ and ‘Maybe’” (p. 226). One method to shed light when there are equivocal findings is through the use of meta-analytic techniques.

An early meta-analysis conducted by Mullen and Copper (1994) examined group cohesiveness and performance across a wide variety of groups. Specifically, a total of 49 cohesion-performance studies were included in the meta-analysis that ranged from artificial (i.e., experimental laboratory groups), to real groups such as sport teams, military units, and business groups. Overall, the findings indicated a small positive performance-cohesion relationship ($r = .248$). That is to say groups with higher perceptions of cohesion experienced better performance. Further examination of the research based upon type of group showed that the cohesion-performance relationship was strongest in real groups. The results also indicated that the strongest relationship was within real sport teams ($r = .537$) and the weakest amongst artificial groups ($r = .156$).

It is important to note that while these findings provided evidence of a sizeable cohesion-performance relationship in sport, they must be viewed with caution. The

Mullen and Copper (1994) meta-analysis contained only eight sport specific studies, missing more than two-thirds of the published refereed publications at the time (Carron, Colman, et al., 2002). Consequently, with a large number of studies missing the validity of the results may be questioned. Moreover, the Mullen and Copper meta-analysis did not include any unpublished sport studies (e.g., dissertations). It is common for meta-analysis to include both published and unpublished sources of data.

In view of these shortcomings, Carron, Colman et al. (2002) conducted a sport specific meta-analysis focusing on the cohesion-performance relationship. This meta-analysis contained a total of 46 studies pertaining to the cohesion-performance relationship and included the examination of several moderating variables such as: source of data (i.e., published vs. unpublished research), research paradigm (i.e., experimental vs. correlational), manifestation of cohesiveness (i.e., task vs. social), sport type, gender, type of performance measure (i.e., self-report vs. objective measures), and finally skill level/experience of the athletes. Overall the results showed a statistically significant moderate to large relationship between cohesion and performance ($ES = .655$). Upon analysis of the potential moderator variables it was found that very few significantly impacted the relationship. Interestingly, and perhaps to sport researchers' benefit, sport type does not moderate the cohesion-performance relationship. This finding allows for an easier generalizing of findings as well as utilization of a benchmark effect size to contrast new research findings against. Furthermore, type of performance measure, be it self-report or objective measures such as winning percentage, did not moderate the relationship either. Again this finding allows for a practical, cross sport, standard to be applied in sport team cohesion research. This result also provided evidence for the

positive usage of several performance standards, not merely objective ones such as winning percentage. A third moderator that had no significant impact was type of cohesion measured; task or social. This finding provides validity for the task and social aspects being representative of cohesion due to the equal impact of both types upon performance. A final note from this meta-analysis was the examination of the difference in the cohesion-performance relationship between studies using the GEQ vs. any other measure of cohesion. While it was found that the GEQ provided statistically significantly lower effect sizes with respect to the magnitude of the relationship there were no differences in magnitude when comparing studies in refereed published journals against unpublished theses and dissertations that had used the GEQ. This finding provides further validity for the use of the GEQ as results follow a similar pattern such that findings are consistently within a common range and the relationship with other variables and cohesion are similar. All of this taken together provides quality evidence for the cohesion-performance relationship being a real phenomenon occurring within sport team.

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Figure Captions

Figure 1. A Conceptual Framework for the Study of Cohesion

Figure 6. The Multidimensional Model of Leadership

Figure 7. The Full Range Model of Leadership

Figure 8. A Conceptual Model for the Study of Cohesion

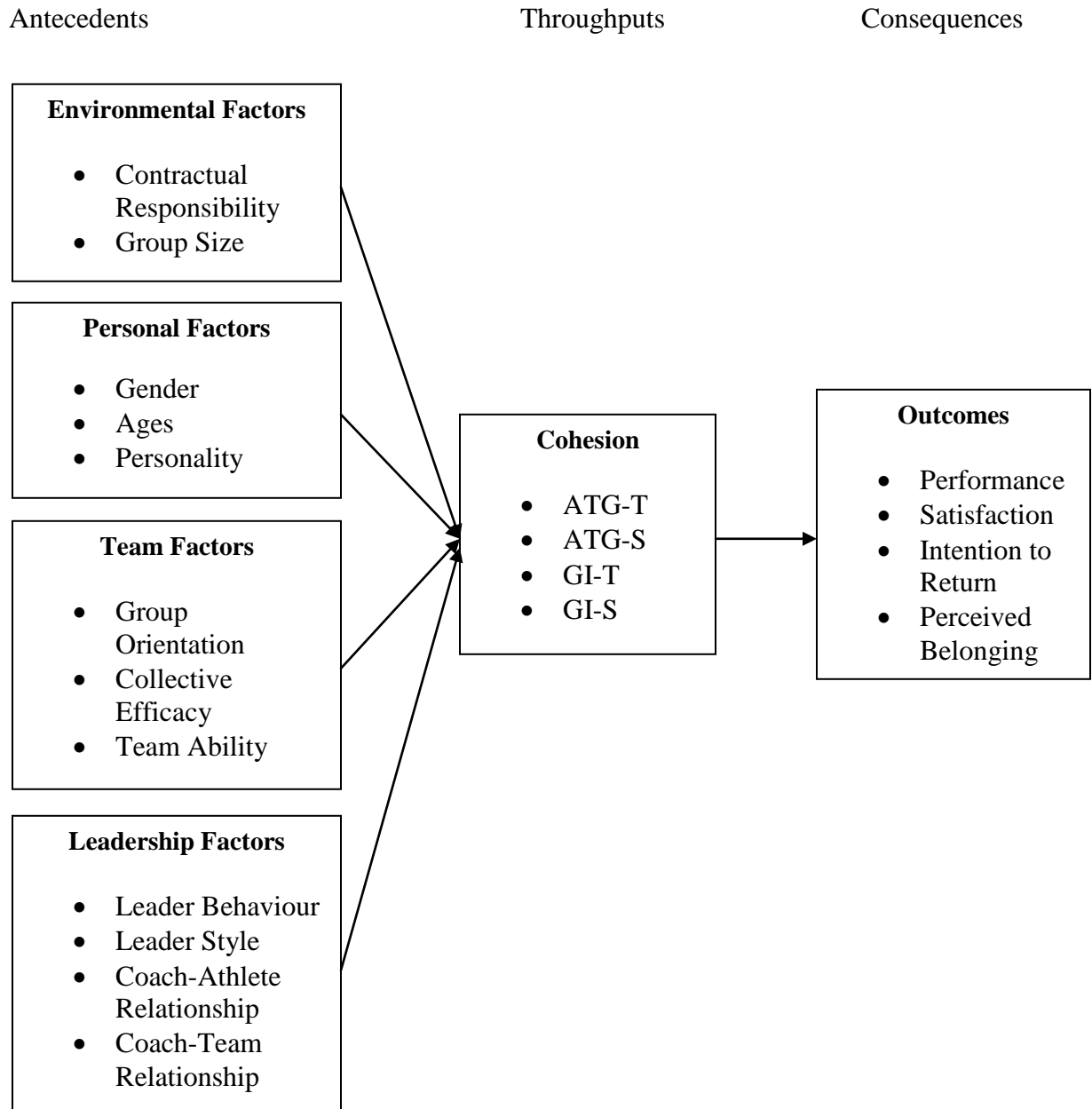


Figure 1. Adapted from “Cohesiveness in sport groups: Implications and considerations”

by A. V. Carron, 1982, *Journal of Sport Psychology*, 4, 123-138.

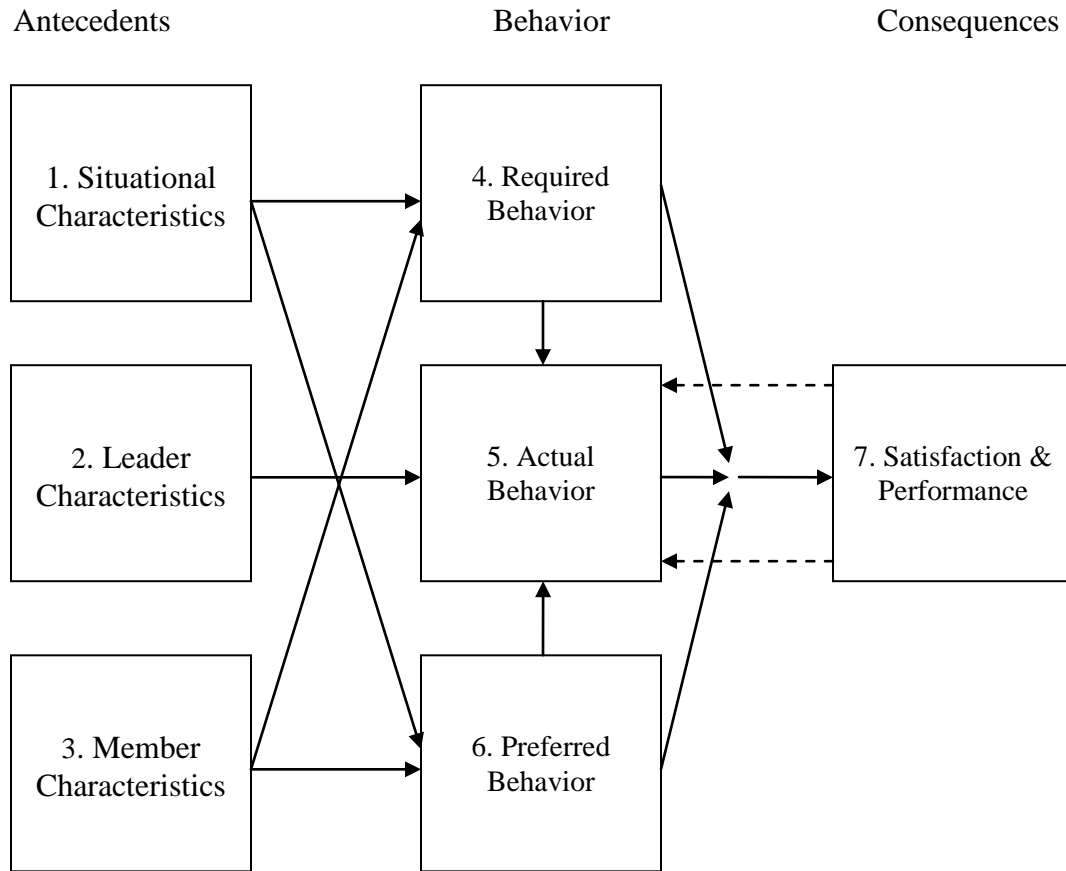


Figure 6. Adapted from “Leadership in sports: A review” by P. Chelladurai, 1990, *International Journal of Sport Psychology*, 21, 328-354.

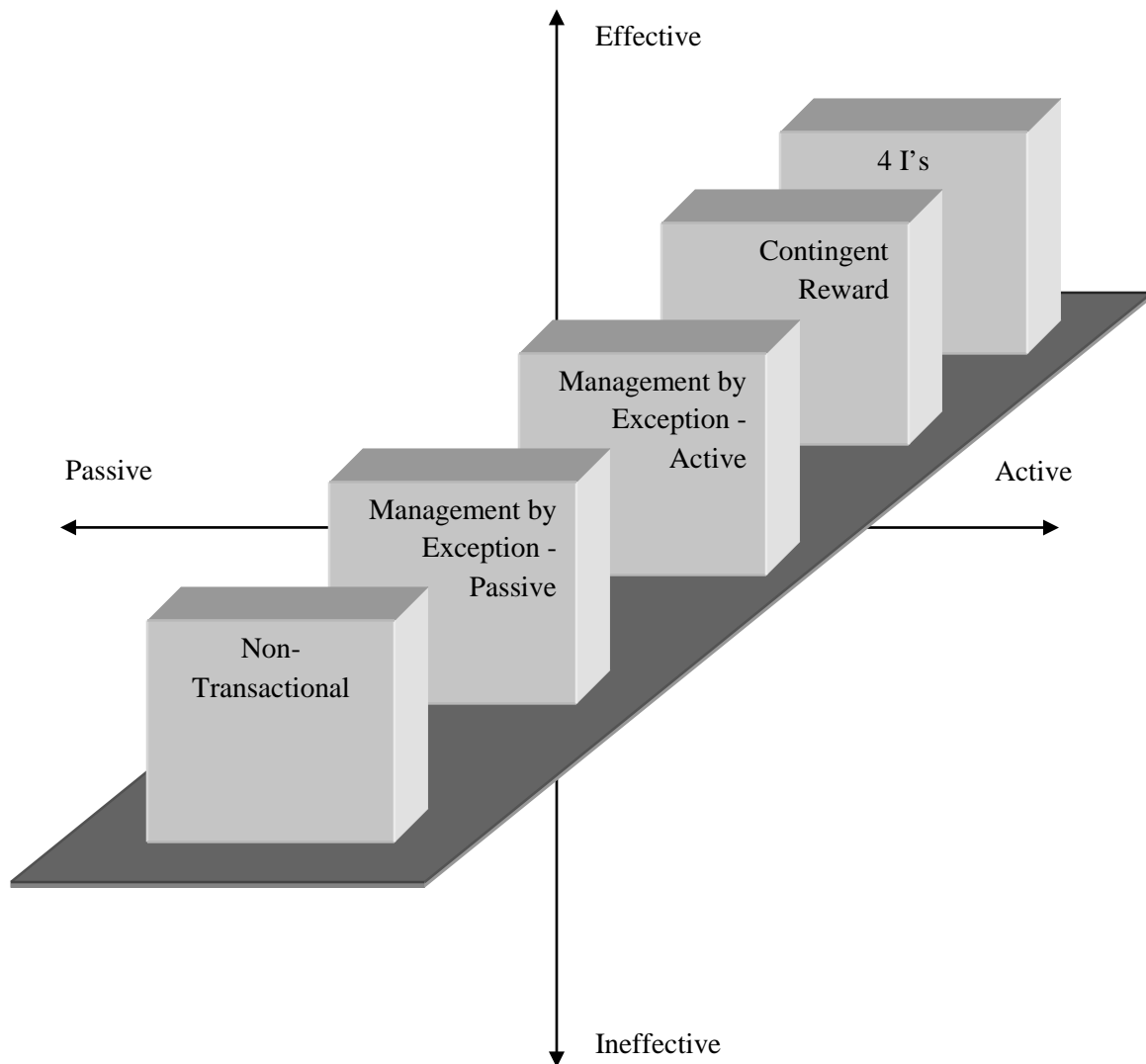


Figure 7. Adapted from “A “full range” view of leadership development and potential” by B. J. Avolio, 1999. In J. Barling & K. Kelloway (Eds.), *Full leadership development: Building the vital forces in organizations* (pp.33-62). Thousand Oaks, CA: Sage.

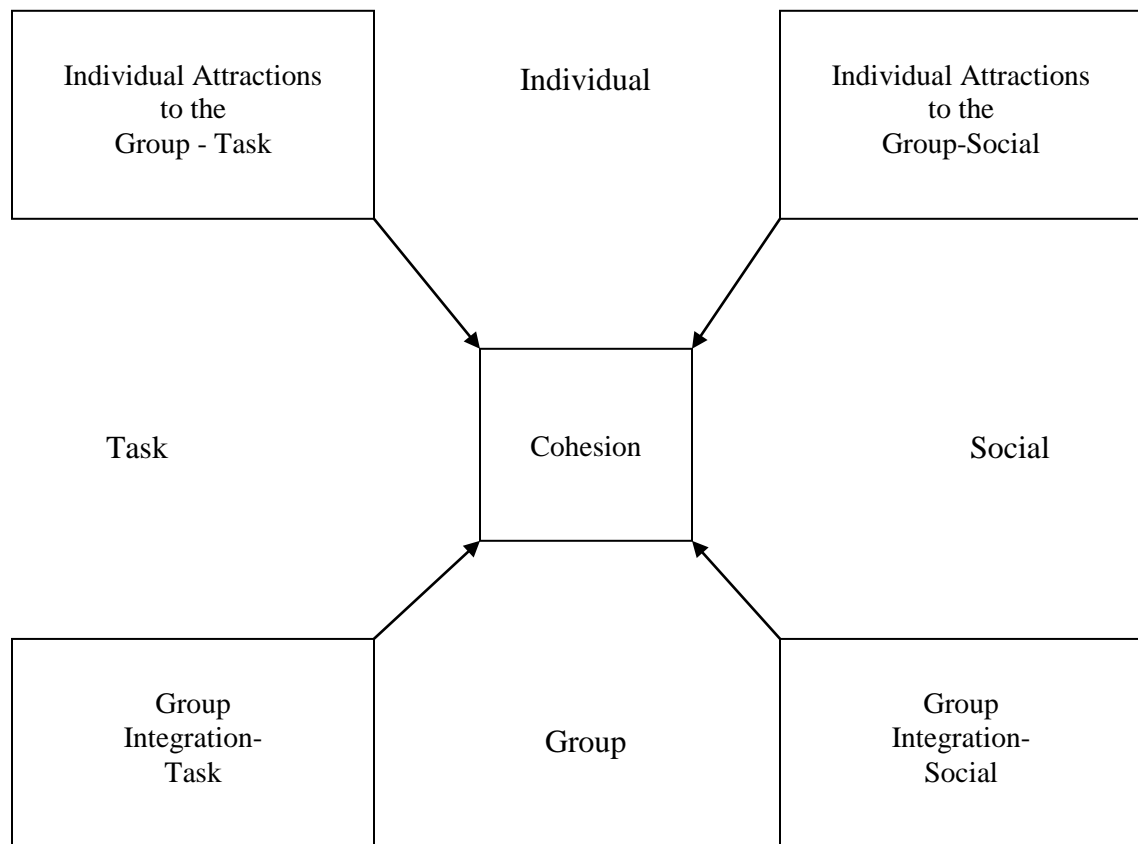


Figure 8. Adapted from “The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire” by A. V. Carron, L. R. Brawley, & N. W. Widmeyer, 1985, *Journal of Sport Psychology*, 7, 244-266.

Appendix A

Tell me a little bit about yourself:**Questions posed to both coaches and athletes:**

I am a: Coach Athlete

Age: _____

Gender: _____

University you currently coach or play at? _____

Current Sport (e.g., basketball, track and field): _____

Number of years with current team (coaching or playing): _____

Highest level ever coached or played (e.g., varsity, provincial, national, international)?

Questions posed to only athletes:

Number of years with current coach: _____

Are you a starter?: Yes No

Gender of your head coach: _____

Appendix B

Leadership Scale for Sports – Athlete Version (LSS; Chelladurai & Saleh, 1980)

Using the following scale, please circle a number from 1 to 5 to indicate your level of agreement with each of the statements regarding your COACH.

1 Never	2 Seldom 25% of the time	3 Occasionally 50% of the time	4 Often 75% of the time	5 Always
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My coach...

	Never			Always	
1. Sees to it that every athlete is working to his/her capacity.	1	2	3	4	5
2. Explains to each athlete the techniques and tactics of the sport.	1	2	3	4	5
3. Pays special attention to correcting athlete's mistakes.	1	2	3	4	5
4. Makes sure that his/her part in the team is understood by all the athletes.	1	2	3	4	5
5. Instructs every athlete individually in the skills of the sport.	1	2	3	4	5
6. Figures ahead on what should be done.	1	2	3	4	5
7. Explains to every athlete what he/she should and what he/she should not do.	1	2	3	4	5
8. Expects every athlete to carry out his assignment to the last detail.	1	2	3	4	5
9. Points out each athlete's strengths and weaknesses.	1	2	3	4	5
10. Gives specific instructions to each athlete as to what he/she should do in every situation.	1	2	3	4	5
11. Sees to it that the efforts are coordinated.	1	2	3	4	5
12. Explains how each athlete's contribution fits into the total picture.	1	2	3	4	5
13. Specifies in detail what is expected of each athlete.	1	2	3	4	5
14. Asks for the opinion of the athletes on strategies for specific competitions.	1	2	3	4	5
15. Gets group approval on important matters before going ahead.	1	2	3	4	5
16. Lets his/her athletes share in decision making.	1	2	3	4	5

17. Encourages athletes to make suggestions for ways of conducting practices.	1	2	3	4	5
18. Lets the group set its own goals.	1	2	3	4	5
19. Lets the athletes try their own way even if they make mistakes.	1	2	3	4	5
20. Asks for the opinion of the athletes on important coaching matters.	1	2	3	4	5
21. Lets athletes work at their own speed.	1	2	3	4	5
22. Lets the athletes decide on the plays to be used in a game.	1	2	3	4	5
23. Works relatively independent of the athletes.	1	2	3	4	5
24. Does not explain his/her action.	1	2	3	4	5
25. Refuses to compromise a point.	1	2	3	4	5
26. Keeps to himself/herself.	1	2	3	4	5
27. Speaks in a manner not to be questioned.	1	2	3	4	5
28. Helps the athletes with their personal problems.	1	2	3	4	5
29. Helps members of the group settle their conflicts.	1	2	3	4	5
30. Looks out for the personal welfare of the athletes.	1	2	3	4	5
31. Does personal favors for the athletes.	1	2	3	4	5
32. Expresses affection he/she feels for his/her athletes.	1	2	3	4	5
33. Encourages the athlete to confide in him/her.	1	2	3	4	5
34. Encourages close and informal relations with athletes.	1	2	3	4	5
35. Invites athletes to his/her home.	1	2	3	4	5
36. Compliments an athlete for his performance in front of others.	1	2	3	4	5
37. Tells an athlete when he/she does a particularly good job.	1	2	3	4	5
38. Sees that an athlete is rewarded for a good performance.	1	2	3	4	5
39. Expresses appreciation when an athlete performs well.	1	2	3	4	5
40. Gives credit when credit is due.	1	2	3	4	5

Appendix C

Leadership Scale for Sports – Coach Version (LSS; Chelladurai & Saleh, 1980)

Using the following scale, please circle a number from 1 to 5 to indicate your level of agreement with each of the statements regarding yourself.

1	2	3	4	5
Never	Seldom 25% of the time	Occasionally 50% of the time	Often 75% of the time	Always

I...

	Never			Always	
1. See to it that every athlete is working to his/her capacity.	1	2	3	4	5
2. Explain to each athlete the techniques and tactics of the sport.	1	2	3	4	5
3. Pay special attention to correcting athlete's mistakes.	1	2	3	4	5
4. Make sure that my part in the team is understood by all the athletes.	1	2	3	4	5
5. Instruct every athlete individually in the skills of the sport.	1	2	3	4	5
6. Figure ahead on what should be done.	1	2	3	4	5
7. Explain to every athlete what he/she should and what he/she should not do.	1	2	3	4	5
8. Expect every athlete to carry out his assignment to the last detail.	1	2	3	4	5
9. Point out each athlete's strengths and weaknesses.	1	2	3	4	5
10. Give specific instructions to each athlete as to what he/she should do in every situation.	1	2	3	4	5
11. See to it that the efforts are coordinated.	1	2	3	4	5
12. Explain how each athlete's contribution fits into the total picture.	1	2	3	4	5
13. Specify in detail what is expected of each athlete.	1	2	3	4	5
14. Ask for the opinion of the athletes on strategies for specific competitions.	1	2	3	4	5
15. Get group approval on important matters before going ahead.	1	2	3	4	5
16. Let my athletes share in decision making.	1	2	3	4	5

17. Encourage athletes to make suggestions for ways of conducting practices.	1	2	3	4	5
18. Let the group set its own goals.	1	2	3	4	5
19. Let the athletes try their own way even if they make mistakes.	1	2	3	4	5
20. Ask for the opinion of the athletes on important coaching matters.	1	2	3	4	5
21. Let athletes work at their own speed.	1	2	3	4	5
22. Let the athletes decide on the plays to be used in a game.	1	2	3	4	5
23. Work relatively independent of the athletes.	1	2	3	4	5
24. Do not explain my actions.	1	2	3	4	5
25. Refuse to compromise a point.	1	2	3	4	5
26. Keep to myself.	1	2	3	4	5
27. Speak in a manner not to be questioned.	1	2	3	4	5
28. Help the athletes with their personal problems.	1	2	3	4	5
29. Help members of the group settle their conflicts.	1	2	3	4	5
30. Look out for the personal welfare of the athletes.	1	2	3	4	5
31. Do personal favors for the athletes.	1	2	3	4	5
32. Express affection I feel for my athletes.	1	2	3	4	5
33. Encourage the athletes to confide in me.	1	2	3	4	5
34. Encourage close and informal relations with athletes.	1	2	3	4	5
35. Invite athletes to my home.	1	2	3	4	5
36. Compliment an athlete for his/her performance in front of others.	1	2	3	4	5
37. Tell an athlete when he/she does a particularly good job.	1	2	3	4	5
38. See that an athlete is rewarded for a good performance.	1	2	3	4	5
39. Express appreciation when an athlete performs well.	1	2	3	4	5
40. Give credit when credit is due.	1	2	3	4	5

Appendix D

Differentiated Transformational Leadership Inventory – Athlete Version
(DTLI; Callow et al., 2009)

Using the following scale, please circle a number from 1 to 5 to indicate your level of agreement with each of the statements regarding your COACH.

1	2	3	4	5
Not at All	Seldom 25% of the time	Occasionally 50% of the time	Often 75% of the time	All of the Time

My coach...

	Not at All		All of the Time		
1. Recognizes that different athletes have different needs.	1	2	3	4	5
2. Treats each team member as an individual.	1	2	3	4	5
3. Considers that I have different strengths and abilities from others.	1	2	3	4	5
4. Helps team members to develop their strengths.	1	2	3	4	5
5. Talks in a way that makes me believe I can succeed.	1	2	3	4	5
6. Talks optimistically about the future.	1	2	3	4	5
7. Talks enthusiastically about what needs to be accomplished.	1	2	3	4	5
8. Expresses confidence that goals will be achieved.	1	2	3	4	5
9. Gets me to re-think the way I do things.	1	2	3	4	5
10. Challenges me to think about problems in new ways.	1	2	3	4	5
11. Shows performers how to look at difficulties from a new angle.	1	2	3	4	5
12. Tries to help us work out how to solve problems.	1	2	3	4	5
13. Encourages athletes to be team players.	1	2	3	4	5
14. Gets the team to work together for the same goal.	1	2	3	4	5
15. Develops a strong team attitude and spirit among athletes.	1	2	3	4	5
16. Insists on only the best performance.	1	2	3	4	5
17. Will not settle for second best.	1	2	3	4	5

18. Expects us to achieve high standards.	1	2	3	4	5
19. Expects a lot from us.	1	2	3	4	5
20. Always expects us to do our best.	1	2	3	4	5
21. Leads from the front whenever he/she can.	1	2	3	4	5
22. Is a good role model for me to follow.	1	2	3	4	5
23. Leads by example.	1	2	3	4	5
24. Always sets a good example.	1	2	3	4	5
25. Leads by “doing” rather than simply “telling”.	1	2	3	4	5
26. Praises athletes when they show improvement.	1	2	3	4	5
27. Personally praises me when I do outstanding work.	1	2	3	4	5
28. Always recognizes our achievements.	1	2	3	4	5
29. Gives me positive feedback when I perform well.	1	2	3	4	5
30. Gives us praise when we do good work.	1	2	3	4	5
31. Gives me special recognition when I do very good work.	1	2	3	4	5

Appendix E

Differentiated Transformational Leadership Inventory – Coach Version
(DTLI; Callow et al., 2009)

Using the following scale, please circle a number from 1 to 5 to indicate your level of agreement with each of the statements regarding yourself.

1	2	3	4	5
Not at All	Seldom 25% of the time	Occasionally 50% of the time	Often 75% of the time	All of the Time

I...

	Not at All		All of the Time		
1. Recognize that different athletes have different needs.	1	2	3	4	5
2. Treat each athlete as an individual.	1	2	3	4	5
3. Consider that different athletes have different strengths and abilities from others.	1	2	3	4	5
4. Help athletes to develop their strengths.	1	2	3	4	5
5. Talk in a way that makes my athletes believe they can succeed.	1	2	3	4	5
6. Talk optimistically about the future.	1	2	3	4	5
7. Talk enthusiastically about what needs to be accomplished.	1	2	3	4	5
8. Express confidence that goals will be achieved.	1	2	3	4	5
9. Get athletes to re-think the way they do things.	1	2	3	4	5
10. Challenge athletes to think about problems in new ways.	1	2	3	4	5
11. Show athletes how to look at difficulties from a new angle.	1	2	3	4	5
12. Try to help athletes work out how to solve problems.	1	2	3	4	5
13. Encourage athletes to be team players.	1	2	3	4	5
14. Get the team to work together for the same goal.	1	2	3	4	5
15. Develop a strong team attitude and spirit among athletes.	1	2	3	4	5
16. Insist on only the best performance.	1	2	3	4	5
17. Will not settle for second best.	1	2	3	4	5

18. Expect my athletes to achieve high standards.	1	2	3	4	5
19. Expect a lot from my athletes.	1	2	3	4	5
20. Always expect us to do our best.	1	2	3	4	5
21. Lead from the front whenever I can.	1	2	3	4	5
22. Am a good role model for my athletes to follow.	1	2	3	4	5
23. Lead by example.	1	2	3	4	5
24. Always set a good example.	1	2	3	4	5
25. Lead by “doing” rather than simply “telling”.	1	2	3	4	5
26. Praise athletes when they show improvement.	1	2	3	4	5
27. Personally praise my athletes when they do outstanding work.	1	2	3	4	5
28. Always recognize our achievements.	1	2	3	4	5
29. Give my athletes positive feedback when they perform well.	1	2	3	4	5
30. Give my athletes praise when they do good work.	1	2	3	4	5
31. Give my athletes special recognition when they do very good work.	1	2	3	4	5

Appendix F

Group Environment Questionnaire (GEQ; Carron, Brawley, & Widmeyer, 1985)

This questionnaire is designed to assess your perceptions of your team. There are no wrong or right answers, so please give your immediate reaction. Some of the questions may seem repetitive, but please answer ALL questions. Your personal responses will be kept in strictest confidence.

The following statements are designed to assess your feelings about YOUR PERSONAL INVOLVEMENT with this team. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of these statements.

1. I do not enjoy being a part of the social activities of this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

2. I'm not happy with the amount of playing time I get.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

3. I am not going to miss the members of this team when the season ends.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

4. I'm unhappy with my team's level of desire to win.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

5. Some of my best friends are on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

6. This team does not give me enough opportunities to improve my personal performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

7. I enjoy other parties rather than team parties.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

8. I do not like the style of play on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

9. For me, this team is one of the most important social groups to which I belong.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

The following statements are designed to assess your perceptions of YOUR TEAM AS A WHOLE. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of these statements.

10. Our team is united in trying to reach its goals for performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

11. Members of our team would rather go out on their own than get together as a team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

12. We all take responsibility for any loss or poor performance by our team.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

13. Our team members rarely party together.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

14. Our team members have conflicting aspirations for the team's performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

15. Our team would like to spend time together in the off season.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

16. If members of our team have problems in practice, everyone wants to help them so we can get back together again.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

17. Members of our team do not stick together outside of practice and games.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

18. Our team members do not communicate freely about each athlete's responsibilities during competition or practice.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

Appendix G

Performance (Spalding, 2010)

The following questions are designed to assess your perceptions of your individual performance up to this point in your season. Please circle a number below each statement to indicate your answer to the following statements.

1. I perform very well.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

2. I am very satisfied with my overall performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

3. I feel a strong commitment to achieving the best possible outcome.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

4. I am highly committed to achieving my goals.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

5. I am highly satisfied with the outcomes achieved.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

6. I regularly engage in reviewing my performance so that I can improve it.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

7. I put considerable effort into my performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

8. I care about the quality of my performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

9. I meet or exceed performance requirements.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

10. I am committed to producing quality performances.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

11. I search for ways to improve my performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

12. I have successfully implemented strategies to improve my performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

13. I have successfully implemented game plans to be a more successful athlete.

1	2	3	4	5	6	7	8	9
Strongly Disagree		Somewhat Disagree		Neither Agree or Disagree		Somewhat Agree		Strongly Agree

Appendix H

Recruitment Script for Coaches

My name is Anthony Vander Laan and I am currently completing my Master's degree in Sport Psychology at the University of Windsor, Ontario. Under the supervision of Dr. Todd Loughhead, I am currently conducting an online study examining coaching leadership and its influence on team cohesion and performance.

With the permission of the University of Windsor Research Ethics Board and your Athletic Director, I am requesting your participation in this research and that you forward this e-mail to the athletes on your team and encourage their participation as well. Please carbon copy ("CC") my e-mail address (vandero@uwindsor.ca), in order for me to keep track of how many invitations were sent out to athletes.

There are no anticipated risks or discomfort associated from participation in this study. Results from the study will allow coaches to develop more productive and effective relationships with their athletes with the goal of improving both team cohesion and performance. As coaches you will have the ability to reflect on your relationship with your athletes and hopefully gain a greater understanding of how you view your coaching behaviours if you partake in the current study.

Participation will take approximately *15 minutes*, in addition to each participant having a chance to enter into a draw to win **one of five \$100 Best Buy gift card**. Individual comments and information provided by the coaches and athletes will not be shared.

Participants can access the online survey at a secure website, by copying and pasting the following web address into their browser:

Web address: <http://app.fluidsurveys.com/surveys/exerciseimagery/coaching-leadership/>

Your assistance and cooperation with this research is greatly appreciated. Please feel free to contact me via e-mail (vandero@uwindsor.ca) or telephone (519-253-3000 ext. 4058) with any questions, comments, and feedback you may have. I look forward to hearing back from you.

Thank you in advance for your help.

Sincerely,

Anthony Vander Laan

B.H.K. Honours in Human Kinetics, Current M.H.K Student

Appendix I

Recruitment Script for Athletes

My name is Anthony Vander Laan and I am currently completing my Master's degree in Sport Psychology at the University of Windsor, Ontario. Under the supervision of Dr. Todd Loughhead, I am currently conducting an online study examining coaching leadership and its influence on team cohesion and performance. Your coach has approved this research project.

With the permission the University of Windsor Research Ethics, and your coach, I am requesting your participation in this research.

There are no anticipated risks or discomfort associated from participation in this study. Results from the study will allow coaches to develop more productive and effective relationships with their athletes with the goal of improving both team cohesion and performance. As athletes you will have the ability to reflect on your relationship with your coach and hopefully gain a greater understanding of how you view your coach's leadership if you partake in the current study.

Participation will take approximately *20 minutes*, in addition to each participant having a chance to enter into a draw to win **one of five \$100 Best Buy gift card**. Individual comments and information provided by participants will not be shared.

Participants can access the online survey at a secure website, by copying and pasting the following web address into their browser:

Web address: <http://app.fluidsurveys.com/surveys/exerciseimagery/coaching-leadership/>

Your assistance and cooperation with this research is greatly appreciated. Please feel free to contact me via e-mail (vandero@uwindsor.ca) or telephone (519-253-3000 ext. 4058) with any questions, comments, and feedback you may have. I look forward to hearing back from you.

Thank you in advance for your help.

Sincerely,

Anthony Vander Laan

B.H.K. Honours in Human Kinetics, Current M.H.K Student

Appendix J

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

The Congruency of Perceived Coaching Behaviours and its Effect on Perceptions of Team Cohesion and Performance

You are asked to participate in a research study conducted by Anthony Vander Laan (B.H.K., M.H.K. Student) and Dr. Todd Loughhead (Ph.D., Faculty Supervisor), from the Department of Kinesiology at the University of Windsor. The results of this study will contribute to the completion of an independent study in sport psychology

If you have any questions or concerns about the research, please feel to contact either Mr. Anthony Vander Laan at 519-253-3000 ext. 4058 or vandero@uwindsor.ca, or Dr. Todd Loughhead at 519-253-3000 ext. 2450 or loughhead@uwindsor.ca.

PURPOSE OF THE STUDY

To examine the influence of coaching leadership on team cohesion and performance.

PROCEDURES

If you volunteer to participate in this study, you will be asked to complete an online questionnaire that may take up to 20 minutes to complete.

POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable psychological or physical risks or discomforts associated with participation in this study.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The information gained from this study will help advance knowledge in the field of sport psychology. The results will help to better understand how coaches affect team variables such as cohesion. This knowledge can be used by sport psychology consultants to enhance the development of coach leaders.

COMPENSATION FOR PARTICIPATION

You will not be compensated for your participation in this study. However, if you choose, you can enter your name into a draw for a chance to win one of five \$100 Best Buy gift cards.

CONFIDENTIALITY

Responses to the questionnaires will remain anonymous while the information from the draw will remain confidential. All data will be kept in a password protected file which will only be accessible by the primary investigators. Potentially the data may also be utilized in subsequent studies conducted by the researchers. Data will be kept secured for five years when it will then be destroyed.

PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary. If you volunteer to be in this study, you may withdraw at any time while you are completing the surveys, without consequences of any kind. However, once you have submitted the completed survey, this will be accepted as your consent to participate and it is not possible to withdraw because the surveys are anonymous. You may also refuse to answer any questions and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

The results will be posted at the University of Windsor's Research Ethics Board website by September 1, 2012 (<http://www.uwindsor.ca/reb>). If you have any additional concerns or questions, you can call the investigators at the numbers above.

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator

Date

VITA AUCTORIS

NAME: Anthony Gerard Vander Laan

PLACE OF BIRTH: London, Ontario, Canada

YEAR OF BIRTH: 1987

EDUCATION: University of Windsor, Windsor, Ontario
2010-2012, M.H.K.

University of Windsor, Windsor, Ontario
2005-2010, B.H.K.

London District Christian Secondary School,
London, Ontario
2001-2005